ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM

Assessment of Data Management Alternatives for the Alberta Oil Sands Environmental Research Program
Part II: Project Information Catalogue

L-48 PM-4

August 1979

Sponsored jointly by

Alberta
ENVIRONMENT

Environment Canada
Environnement Canada

15th Floor, Oxbridge Place
9820 - 106 Street
Edmonton, Alberta, Canada
T5K 2J6

91-03413/

ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM
RESEARCH REPORTS

These research reports describe the results of investigations funded under the Alberta Oil Sands Environmental Research Program, which was established by agreement between the Governments of Alberta and Canada in February 1975 (amended September 1977). This 10-year program is designed to direct and co-ordinate research projects concerned with the environmental effects of development of the Athabasca Oil Sands in Alberta.

A list of research reports published to date is included at the end of this report.

Enquiries pertaining to the Canada-Alberta Agreement or other reports in the series should be directed to:

Alberta Oil Sands Environmental Research Program
15th Floor, Oxbridge Place
9820 - 106 Street
EDMONTON, Alberta
T5K 2J6
(403) 427-3943

Assessment of Data Management Alternatives for the Alberta Oil Sands Environmental Research Program
Part II: Project Information Catalogue

AOSERP Report PM-4

This report may be cited as:

McLaren, James F., Limited. 1979. Assessment of data management alternatives for the Alberta Oil Sands Environmental Research Program. Part II: Project information catalogue. Prep. for the Alberta Oil Sands Environmental Research Program by James F. McLaren Limited. Program Management Report PM-4, Part II. 181 pp.

The Hon. J.W. (Jack) Cookson
Minister of the Environment
222 Legislative Building
Edmonton, Alberta

and

The Hon. John Fraser
Minister of the Environment
Environment Canada
Ottawa, Ontario

Sirs:

Enclosed is the report "Assessment of Data Management Alternatives for the Alberta Oil Sands Environmental Research Program. Part II: Project Information Catalogue".

This report was prepared for the Alberta Oil Sands Environmental Research Program, through its Program Management, under the Canada-Alberta Agreement of February 1975 (amended September 1977).

Respectfully,

W. Solodzuk, P. Eng.
Chairman, Steering Committee, AOSERP
Deputy Minister, Alberta Environment

A.H. Macpherson, Ph.D
Member, Steering Committee, AOSERP
Regional Director-General
Environment Canada
Western and Northern Region

ASSESSMENT OF DATA MANAGEMENT ALTERNATIVES FOR THE ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM

DESCRIPTIVE SUMMARY

BACKGROUND

Since the inception of the Alberta Oil Sands Environmental Research Program, vast amounts of raw data have been collected by many projects and these data are in many forms at different locations in Canada.

The purpose of this project was to identify all the forms and sources of these data and to compile them into a reference catalogue. The project was to also recommend a data management system suitable for AOSERP.

EVALUATION

The report consists of two volumes, Part I containing the recommendations for a data management system, and Part II consisting of the information catalogue. The contractor has satisfactorily met the terms of this project and the recommendations will be implemented. However, as the interest of this report is quite limited outside of the Program, it will be published as a limited distribution report. The authors are thanked for their contributions.

S.B. Smith, Ph.D
Program Director
Alberta Oil Sands Environmental
Research Program

P.S. Grant
Assistant Director

ASSESSMENT OF DATA MANAGEMENT ALTERNATIVES FOR THE ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM

PART II: PROJECT INFORMATION CATALOGUE

by

JAMES F. McLAREN LIMITED

for

ALBERTA OIL SANDS ENVIRONMENTAL
RESEARCH PROGRAM

August 1979

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ACKNOWLEDGEMENTS

This Program Management report was funded by the Alberta Oil Sands Environmental Research Program, a joint Alberta-Canada research program established to fund, direct, and co-ordinate environmental research in the Athabasca Oil Sands area of northeastern Alberta.

FOREWORD

The Alberta Oil Sands Environmental Research Program (AOSERP), since its conception in 1975 has accumulated significant amounts of data through the various studies initiated by its Air, Human, Land and Water System Research Groups.

AOSERP realized that as the data accumulated, access by the data user, researcher and proponent, to pertinent data, was becoming increasingly difficult. As a result, on June 28, 1978, the Alberta Oil Sands Environmental Research Program commissioned James F. MacLaren Ltd. to perform a three-phase study to develop a data management system. The major tasks involved with each phase were:

Phase 1:	Prepare a data information catalogue on all AOSERP research projects based on information available as of March 31, 1978.
Phase 2:	Identify the needs of AOSERP data users, researchers and proponents with regards to data access.
Phase 3:	Develop an AOSERP data management system.

The following document is a final copy of the data source catalogue which constitutes Phase 1 of this study. A draft copy of this document was sent to AOSERP data users with a questionnaire during Phase 2 of the above defined study. After a review by AOSERP management and AOSERP data users, the final catalogue was assembled.

DATA SOURCE CATALOGUE HEADINGS

The catalogue headings and subheadings are as follows:

1. AIR
    a. Meteorology (ME)

2. HUMAN
    a. Human Environment (HE)

3. LAND
    a. Terrestrial Fauna (TF)
    b. Vegetation (VE)

4. WATER
    a. Aquatic Fauna (AF)
    b. Hydrogeology (HG)
    c. Hydrology (HY)

These section headings were developed based on existing AOSERP system divisions. At the beginning of each main section there is an index prepared for that section. It should be noted that in fiscal year 1978/79 all projects within a specific system will have their identifier abbreviations changed as follows:

1. Air System (AS)
2. Human System (HS)
3. Land System (LS)
4. Water System (WS)

An example is all projects with identifying abbreviations AF, HG or HY will be changed to WS.

DATA INFORMATION SHEET HEADINGS

The headings on the data information sheets which follow are:

1. Fiscal Year

   This is the fiscal year (e.g. 1977-78) in which the project was completed. If the project is on-going then the year of the last update should be shown as the fiscal year.

2. Updated To

   This is the date at which time the data sheet was last updated. In these data sheets the date of the last update is 31 March 1978 since all information on these sheets is based on information obtained as of 31 March 1978.

3. Project Number

   The project number is as indicated in the index of research projects prepared by AOSERP.

4. System

   The system identifies the research group (e.g. air, human, land and water).

5. Title

   The title is as shown in the index of research projects prepared by AOSERP.

6. Objective

   This area of the information sheet defines the objective or the terms of reference for the research project.

7. Proponent

   The proponent is the organization which undertook the research for AOSERP.

8. Researcher

The researcher is the actual person within the proponent's organization who carried out the research.

9. Level of Effort to Date

This area of the information sheet identifies the level of effort (e.g. estimated dollar value) expended up to the "updated to" date (see Item 2 above).

10. Project Starting Date

This is the date when the project started (i.e. when budget was authorized)

11. Project Completion Date

This is the date when the project was completed (i.e. when final report was approved). If the project is on-going, then the proposed completion date is stated.

12. Location

This category identified the location where the research took place (e.g. in the AOSERP geographical area or a laboratory in Edmonton). This may result in the identification of monitoring stations, etc. Maps are references wherever possible (e.g. see report or research manager's file).

A general map of the AOSERP area has been included in the catalogue immediately following this section. This will give the catalogue user a general idea of where certain geographical areas mentioned on the data information sheets are located. On many occasions detailed maps are available in the reports. References to these reports for the maps have been made on the data information sheet wherever possible.

13. Data Information Contact

The data information contact is the appropriate AOSERP research manager of the system which undertook the project. The research manager identified will be knowledgeable about the data which emanated from the research project and will be able to control its distribution and relationship with other projects.

14. Data Access Contact

The data access contact does not necessarily have to be the same as above. It could be someone who knows nothing about the mechanics of the data but does know how to gain access (e.g. a librarian or a computer systems manager).

15. Types of Data Collected

This category can be subdivided into two main types of data - primary and secondary data. Primary data are the values for parameters which were important to the study objectives. Secondary data are values for parameters which are the result of monitoring primary parameters.

Primary and secondary parameters should be itemized (e.g. Primary: (1) water quality, (2) hydrogeological, (3) hydrotechnical; Secondary: (4) soil conditions (5) vegetation).

Under each of the two data categories further information will be placed in the following subcategories:

a. Raw Form: This identifies the form in which the data was collected (e.g. strip charts, tape recorder, field collection units, laboratory notes). Actual examples of data collection forms are referenced on the data information sheets (e.g. see report or research manager's file).

b. Frequency: Frequency will identify how often samples were taken to monitor the parameters. An example may be (1) hourly, (2) 24-hour pump tests, (3) continuously. The numbering would refer back to the number under primary or secondary data.

c. Reduced Form: This category indicates any forms in which the data has been reduced (e.g. tables, graphs, relationships, etc.).

d. Form of Storage: The form of storage identifies how the data has been stored both for raw and reduced forms. An example is (1) AOSERP File System and AOSERP Report #5, (2) Computer Tape File and AOSERP Report #5, (3) same as (2).

In this category the location of the storage will be identified (e.g. (1) AOSERP research manager's file, (2) Atmospheric Environment Service (AES).

e. Data Analysis: This category identifies any analysis which was performed on data; e.g. (1) statistical - student t-test, (2) long-term yield evaluations, (3) stormwater management model.

16. Project Status

This category indicates the status of the project; e.g. on-going, final report being reviewed, project complete, etc.

17. Comments

This area is allotted for miscellaneous comments which are important to the project but not covered by the previous categories. Relationships of projects with other projects or any important events which have occurred over the duration of the project such as a change in the proponent, etc. will be identified in this section.

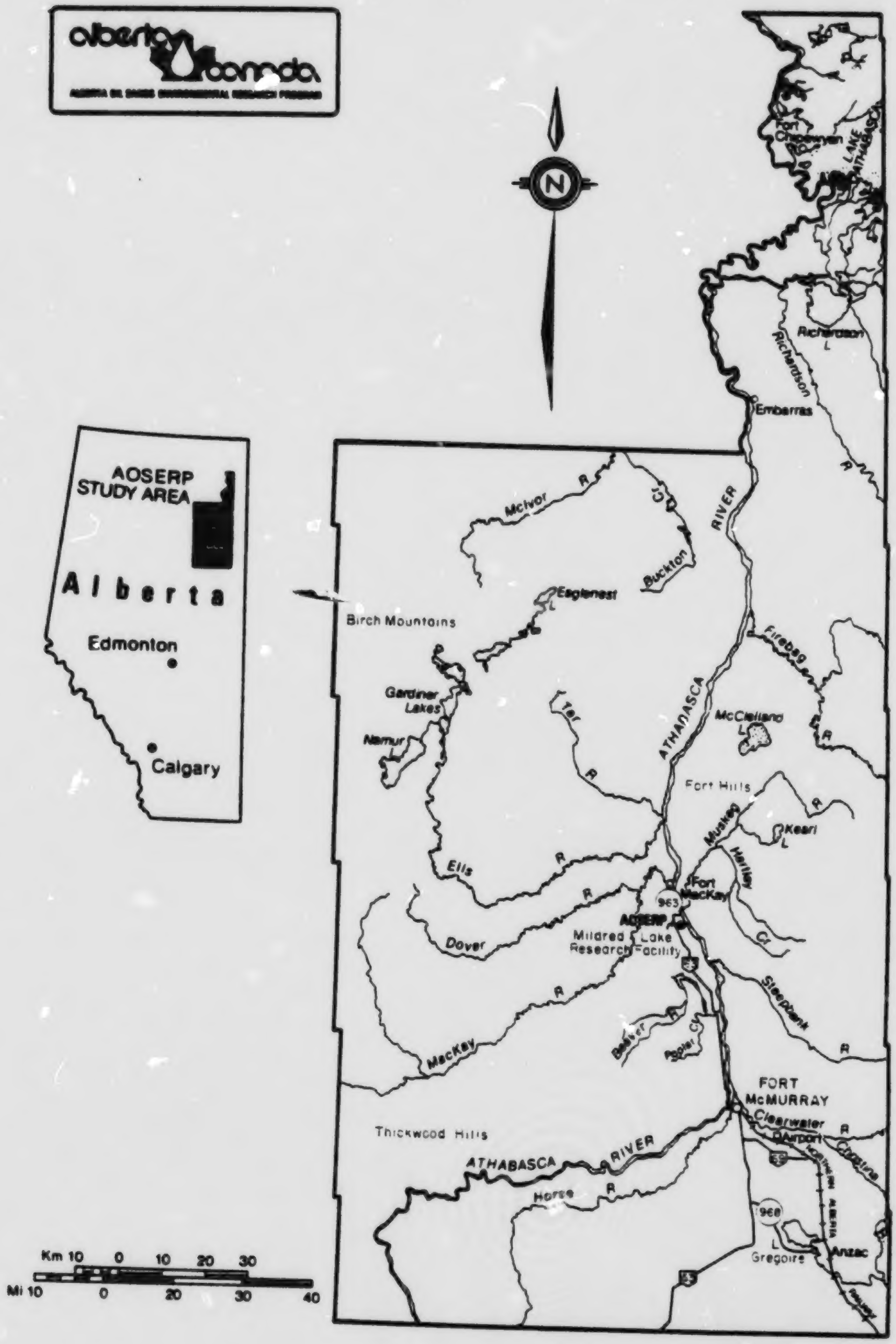
alberta canada
AOSERP STUDY AREA
Alberta
Edmonton
Calgary
N
Fort Chipewyan
LAKE ATHABASCA
Richardson L
Richardson
R
Embarras
RIVER
McIvor R
Cr
Buckton
Eaglenest L
Birch Mountains
Gardiner Lakes
Namur L
Firebag
R
ATHABASCA
McClelland L
Tar R
Fort Hills
Muskeg
Kearl L
R
Hartley
Ells R
Fort MacKay
963
AOSERP
Mildred Lake Research Facility
Cr
Dover R
Steepbank R
R
Beaver R
Poplar Cr
MacKay
FORT McMURRAY
Clearwater R
Airport
Christina
Thickwood Hills
ATHABASCA RIVER
Horse R
963
Gregoire L
Anzac
Km 10 0 10 20 30
Mi 10 0 20 30 40

Figure 1. Map of the AOSERP Study Area.

DATA SOURCE CATALOGUE

INDEX: AIR

I. Meteorology (ME)

ME 1.1	Meteorological Data Acquisition: Meteorological Tower
ME 1.2	Meteorological Data Acquisition: Meteorological Network
ME 1.3	Meteorological Data Acquisition: Mobile Minisonde
ME 1.4	Meteorological Data Acquisition: Precipitation Chemistry
ME 1.5.1	Meteorological and Air Quality Winter Field Study, March 1976
ME 1.5.2	Meteorology and Air Quality Winter Field Study - February 1977
ME 1.5.3	Meteorology and Air Quality Summer Field Study - June 1977
ME 1.6	The Feasibility of a Weather Radar Near Fort McMurray, Alberta
ME 1.7	Very High Resolution Meteorological Satellite Study of Oil Sands Weather, "A Feasibility Study"
ME 2.1	Air Quality Data Acquisition Network
ME 2.2	Inventory of Sources and Emissions in the AOSERP Study Area
ME 2.3.1	Plume Dispersion Measurements from an Oil Sands Extraction Plant
ME 2.3.2	Plume Dispersion Measurements from an Oil Sands Extraction Plant
ME 2.4	Air Quality Data Acquisition - Data Analysis
ME 3.1	Preliminary Air Pollution Climatology
ME 3.2	Background Air Quality in the AOSERP Study Area
ME 3.3	Preliminary Investigation into the Magnitude of Fog Occurrence and Associated Problems in the Oil Sands Area
ME 3.4	Climatology of Low Level Air Trajectories in the Alberta Oil Sands Area
ME 3.5.1	Review of Pollutant Transformation Processes Relevant to the Alberta Oil Sands Area

Index: Air (cont'd)

ME 3.5.2	Pollutant Transformation Processes
ME 3.5.2	SO_2 Oxidation in the Plumes from the GCOS Extraction Plant Under Summer Conditions
ME 3.5.4	Plume Chemical Reaction--Modelling and Verification
ME 3.6	Literature Review on Pollution Deposition Processes
ME 3.7	Low Temperature Fog Observations
ME 3.8.1	Estimation of Dispersion Coefficients from Bivane Measurements
ME 3.8.2	Literature Survey and Synthesis of Turbulence Measurements
ME 3.8.3	Calculate Sigma Data for the Alberta Oil Sands Environmental Research Program Study Area
ME 4.1	Calculations of Annual Averaged Sulphur Dioxide Concentration at Ground Level in the AOSERP Study Area
ME 4.2.1	Review of Dispersion Models and Possible Applications in the Alberta Oil Sands Area
ME 4.2.2	Air Quality Simulation Modelling
ME 5.0	Climatology and Air Quality

I. METEOROLOGY - ME

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 1.1

SYSTEM: AIR

TITLE:

Meteorological Data Acquisition:
Meteorological Tower

OBJECTIVE:

Acquire temperature and wind measurements on a 150-m tower.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Not available. See Data Information Contact.

LEVEL OF EFFORT TO DATE:

$100,000 including instrumentation

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: March 1980

LOCATION:

Lower Syncrude (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Temperature - 5 levels
2. Wind - 3 levels

Raw Form:

1 & 2. Recorder Charts

Frequency:

1 & 2. Continuous

Reduced Form:

1 & 2. Abstracts, monthly summaries

Data Analysis:

Statistical

Form of Storage:

Text and abstracted forms; Atmospheric Environment Service, Edmonton

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Janz
Atmospheric Environment Service
Edmonton, Alberta

(403) 437-1250

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Project included installation of monitoring equipment, 1975-76. For additional meteorological data refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 1.2

SYSTEM: AIR

TITLE:

Meteorological Data Acquisition:
Meteorological Network

OBJECTIVE:

Acquire meteorological data for 10 stations in the AOSERP Study Area.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Not available. See Data Information Contact.

LEVEL OF EFFORT TO DATE:

$250,000 including installation

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: March 1980

LOCATION:

Nine telemetry stations and Mildred Lake (See proponent file for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:

1. Temperature
2. Wind
3. Relative Humidity
4. Precipitation
5. Solar Radiation
6. Evaporation

Raw Form:

Recorder tape and charts

Frequency:

Hourly and daily

Reduced Form:

Catalogue, monthly summaries

Data Analysis:

Statistical

Form of Storage:

Magnetic tape, text, abstracts; Atmospheric Environment Service

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Janz
Atmospheric Environment Service
Edmonton, Alberta

(403) 437-1250

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Project included installation of monitoring stations, 1975-76. For additional meteorological data refer to the Air System Data Directory, AOSERP.

1977-78

31 March 1978

ME 1.3

SYSTEM: AIR

TITLE:

Meteorological Data Acquisition:
Mobile Minisonde

OBJECTIVE:

Obtain upper air temperature and wind profiles in the AOSERP Study Area.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Not available. See Data Information Contact.

LEVEL OF EFFORT TO DATE:

$50,000

PROJECT STARTING DATE: January 1977

PROJECT COMPLETION DATE: March 1980

LOCATION:

Mildred Lake and Lower Syncrude (See proponent file for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:
1. Temperature
2. Wind

Raw Form:

Recorder charts, theodolite bearings

Frequency:

Twice daily for 2-week periods, 4 times per year

Reduced Form:

Profiles of upper air temperatures and wind; catalogue, monthly summaries

Data Analysis:

Statistical (arithmetic means, standard deviations)

Form of Storage:

Text and magnetic tape; Atmospheric Environment Service, Edmonton

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Janz
Atmospheric Environment Service
Edmonton, Alberta

(403) 437-1250

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Project included acquisition of monitoring equipment 1975-76. For additional meteorological data refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 1.4

SYSTEM: AIR

TITLE:

Meteorological Data Acquisition:
Precipitation Chemistry

OBJECTIVE:

Analyze dissolved chemicals in precipitation.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Not available. See Data Information Contact.

LEVEL OF EFFORT TO DATE:

$8,000

PROJECT STARTING DATE: June 1976

PROJECT COMPLETION DATE: March 1980

LOCATION:

Fourteen sites in the AOSERP Study Area (see proponent file for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:

1. Chemical constituents in precipitation samples.
2. Precipitation amount.

Raw Form:

1. Lab notes
2. Recorder charts

Frequency:

Daily (events); monthly (bulk)

Reduced Form:

Catalogue, monthly summaries

Data Analysis:

Statistical (arithmetic means, standard deviations)

Form of Storage:

Text; Atmospheric Environment Service, Edmonton

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Janz
Atmospheric Environment Service
Edmonton, Alberta

(403) 437-1250

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

For additional meteorological data refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: ME 1.5.1

SYSTEM: AIR

TITLE:

Meteorological and Air Quality Winter Field Study. March 1976

OBJECTIVE:

Evaluate meteorological and dispersion conditions in the Alberta Oil Sands Area in winter and investigate air quality and pollutant deposition patterns.

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Compiled by Dr. F. Fanaki

LEVEL OF EFFORT TO DATE:

$50.000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1976

LOCATION:

Mildred Lake area (see report for detailed location)

TYPES OF DATA COLLECTED:

Primary:
1. Wind speed & direction
2. Temperature
3. Turbulence, SO_2 Concentration
4. Plume rise photography
5. Background air & precipitation chem.

Raw Form:

1. Recorder charts

2, 3 & 5. Not available
4. Photographs

Frequency:

1. Continuous
2. Daily
3. Hourly
4 & 5. Various

Reduced Form:

Summary tables and graphs

Data Analysis:

Compilation, statistical (arithmetic means, standard deviations)

Form of Storage:

AOSERP Report #27; Alberta Environment Library; unpublished data; original Data Access Contact

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3953

DATA ACCESS CONTACT:

Dr. F. Fanaki, Air Quality Research Branch
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Project Complete.

COMMENTS:

ME 1.5.1 coordinated with ME 2.3.1. For additional meteorological data refer to the Air System Data Directory. AOSERP.

Fiscal Year:	Updated to:	Project No.:
1976-77	31 March 1978	ME 1.5.2

SYSTEM: AIR

TITLE:

Meteorology and Air Quality Winter Field Study - February 1977

OBJECTIVE:

Determine winter meteorological and dispersion conditions in the Mildred Lake Area.

Determine the rate of SO_2 oxidation of the GCOS plume and determine its constituents.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Dr. F. Fanaki, Dr. M. Lusis and
Dr. R. Mickle
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$50,000

PROJECT STARTING DATE: February 1977

PROJECT COMPLETION DATE: February 1977

LOCATION:

Mildred Lake Area (AOSERP Study Area)

TYPES OF DATA COLLECTED: Primary:

1. Wind speed and direction
2. Temperature
3. Humidity
4. Photography of GCOS plume
5. SO_2, sulfate and sulfuric acid sampling of GCOS plume

Raw Form:

1. Recorded charts

2, 3 & 5. Not available

4. Photographs

Frequency:

1. Continuous
2. Daily
3. Hourly

4 & 5. Various

Reduced Form:

Graphs, summary tables

Data Analysis:

Computational, statistical (arithmetic means, standard deviations)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. F. Fanaki, Air Quality Research Branch
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Final report in review.

COMMENTS:

For additional meteorological data refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 1.5.3

SYSTEM: AIR

TITLE:

Meteorology and Air Quality Summer Field Study - June 1977

OBJECTIVE:

Determine summer meteorological and dispersion characteristics in the Mildred Lake Area.

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. F. Fanaki, Drs. R.E. Mickle, M. Lusis, Dr. L.A. Barrie and Dr. R.M. Hoff
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$50,000

PROJECT STARTING DATE: June 1977

PROJECT COMPLETION DATE: June 1977

LOCATION:

Mildred Lake and Birch Mountain (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:

1. Chemistry of the plume
2. Constituents of the plume
3. Oxidation rate of SO_2
4. Composition of particulates

Raw Form:

Field notes

Frequency:

Various

Reduced Form:

Summary tables and graphs

Data Analysis:

Computational, statistical (arithmetic means)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. F. Fanaki, Air Quality Research Branch
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Final report in preparation.

COMMENTS:

ME 1.5.3 coordinated with ME 3.5.2 and ME 2.3.2. For additional meteorological data refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 1.6

SYSTEM: AIR

TITLE:

The Feasibility of a Weather Radar Near Fort McMurray, Alberta

OBJECTIVE:

Determine the feasibility of using weather radar to map precipitation areas in the AOSERP Study Area.

PROPONENT:

Alberta Research Council, Atmospheric Services Division

RESEARCHERS:

Dr. B.L. Barge, Dr. R.G. Humphries and Mr. S.L. Olson
Alberta Research Council

LEVEL OF EFFORT TO DATE:

$50,000

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: October 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No new data collected. See comments.

Raw Form:

Rain gauge data

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

Evaluation of weather radar

Form of Storage:

AOSERP Report #16; Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. B.L. Barge, Atmospheric Services Div.
Alberta Research Council
Edmonton, Alberta

(403) 432-8181

PROJECT STATUS:

Project Complete.

COMMENTS:

Data from the AOSERP study area rain gauge network was used as primary data.

1976-77

31 March 1978

ME 1.7

SYSTEM: AIR

TITLE:

Very High Resolution Meteorological Satellite Study of Oil Sands Weather, "A Feasibility Study"

OBJECTIVE:

Determine the feasibility of using VHRR satellite imagery to identify fog occurrence, cloud cover, ice cover and paths of effluent plumes.

PROPONENT:

University of Alberta, Dept. of Geography

RESEARCHERS:

Dr. R.D. Charlton and Mr. J.M. Mercer, University of Alberta

LEVEL OF EFFORT TO DATE:

$5,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

No new data collected, see comments.

Raw Form:

LANDSAT and NOAA satellite photographs

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

Interpretive

Form of Storage:

AOSERP Report #12; Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project Complete.

COMMENTS:

LANDSAT and NOAA satellite photographs used as primary data.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 2.1

SYSTEM: AIR

TITLE:

Air Quality Data Acquisition Networks

OBJECTIVE:

Establish baseline air quality conditions in AOSERP Study Area.

PROPONENT:

Alberta Environment
Pollution Control Division

RESEARCHERS:

Mr. M. Strosher
Alberta Environment

LEVEL OF EFFORT TO DATE:

$500,000

PROJECT STARTING DATE: February 1977

PROJECT COMPLETION DATE: March 1980

LOCATION:

Birch Mountain, Bitumont and Fort McMurray (see report for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:

1. Concentration of pollutant gases
2. Concentration and composition of particulates in air.

Raw Form:

1. Strip charts
2. Strip charts and lab notes

Frequency:

1. ½ hour, hourly, daily
2. not available

Reduced Form:

Text, computer storage

Data Analysis:

Statistical (arithmetic means, standard deviations)

Form of Storage:

Charts, computer print-out, maps, summary tables, AOSERP Report #30, Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Mark Strosher, Pollution Control Division, Alberta Environment
Edmonton, Alberta
(403) 427-5893

PROJECT STATUS:

Project on-going.

COMMENTS:

For additional air quality data refer to the Air System Data Directory, AOSERP.

1976-77

31 March 1978

ME 2.2

SYSTEM: AIR

TITLE:

Inventory of Sources and Emissions in the AOSERP Study Area

OBJECTIVE:

Prepare an inventory system for atmospheric emissions in the AOSERP Study Area.

PROPONENT:

SNC Tottrup Services Ltd., Edmonton

RESEARCHERS:

W. Shelfentook
SNC Tottrup Services Ltd.

LEVEL OF EFFORT TO DATE:

$60,000

PROJECT STARTING DATE: November 1975

PROJECT COMPLETION DATE: August 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Source, location, variation with time, composition and quantities of emissions.

Raw Form:

Field notes

Frequency:

Once

Reduced Form:

Summary tables, graphs and charts

Data Analysis:

Compilation

Form of Storage:

Computer, AOSERP Report #29; Alberta Environment, Quality Control Branch and Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Mark Strosher, Pollution Control Div.
Alberta Environment
Edmonton, Alberta
(403) 427-5893

PROJECT STATUS:

Project Complete.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1987

Project No.: ME 2.3.2

SYSTEM: AIR

TITLE:

Plume Dispersion Measurements from an Oil Sands Extraction Plant

OBJECTIVE:

Collect data in GCOS plume characteristics and relate to dispersion.

PROPONENT:

Intera Environmental Consultants Ltd.
Calgary, Alberta

RESEARCHERS:

Dr. D.S. Davison and Mr. K.L. Grandia
Intera Environmental Consultants Ltd.

LEVEL OF EFFORT TO DATE:

$60,000

PROJECT STARTING DATE: June 1977

PROJECT COMPLETION DATE: February 1978

LOCATION:

Mildred Lake Area (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:

1. SO_2 concentration and flux
2. Turbulence data
3. Plume characteristics

Raw Form:

1 & 2. Magnetic tape, strip chart
3. Field notes

Frequency:

Flight profiles

Reduced Form:

Tables, graphs and charts

Data Analysis:

Computational, statistical (arithmetic means, standard deviations)

Form of Storage:

Magnetic tape; final report not available at present.

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report in preparation.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 2.4

SYSTEM: AIR

TITLE:

Air Quality Data Acquisition - Data Analysis

OBJECTIVE:

Analyze the air quality data collected during the AOSERP research projects.

PROPONENT:

N/A (see project status)

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project discontinued.

COMMENTS:

Fiscal Year:	Updated to:	Project No.:
1975-76	31 March 1978	ME 3.1

SYSTEM: AIR

TITLE:

Preliminary Air Pollution Climatology

OBJECTIVE:

Analyze existing weather observations in order to prepare a preliminary climatology of meteorological parameters that are relevant for assessing air pollution potential.

PROPONENT:

Environment Canada
Atmospheric Environment Service

RESEARCHERS:

Dr. P. Summers
Environment Canada

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: May 1976

LOCATION:

Fort McMurray Airport, Fort Smith and Edmonton

TYPES OF DATA COLLECTED:

Primary:

1. Wind speed and direction
2. Mixing heights
3. Ventilation coefficients

Raw Form:

AES records

Frequency:

N/A

Reduced Form:

Summary tables and charts

Data Analysis:

Frequency analysis

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. P. Summers
Environment Canada

PROJECT STATUS:

Project complete.

COMMENTS:

Primary data supplied from AES Records.

1977-78 | 31 March 1978 | ME 3.2

SYSTEM: AIR

TITLE:

Background Air Quality in the AOSERP Study Area

OBJECTIVE:

Determine the composition and atmosphere concentrations of background suspended particulates of Birch Mountain. Determine chemical constituents of snow in the Mildred Lake Area.

PROPONENT:

Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. L.A. Barrie
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$10,000

PROJECT STARTING DATE: June 1977

PROJECT COMPLETION DATE: March 1979

LOCATION:

Mildred Lakes Area and Birch Mountain
(AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:

1. Concentration and composition of atmospheric suspended particles
2. Chemical constituents of snow

Raw Form:

1. Field notes
2. Lab reports

Frequency:

Various

Reduced Form:

Text

Data Analysis:

Compilation

Form of Storage:

Text, proponent files; Atmospheric Environment Service, Downsview, Ontario

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. L.A. Barrie
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Project on-going; interim report in preparation.

COMMENTS:

For additional air quality information refer to the Air System Data Directory, AOSERP.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 3.3

SYSTEM: AIR

TITLE:

Preliminary Investigation into the Magnitude of Fog Occurrence and Associated Problems in the Oil Sands Area

OBJECTIVE:

Determine what is known about the magnitude of fog occurrence and the potential impact of fog in the Alberta Oil Sands Area.

PROPONENT:

Stanley and Associates Engineering Ltd.
Edmonton, Alberta

RESEARCHERS:

Mr. B. Croft, Dr. R.N. Dawson and
Dr. A. Lamb
Stanley and Associates Engineering Ltd.

LEVEL OF EFFORT TO DATE:

$15,000

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: June 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

Literature plus data on meteorology, topography and water emissions.

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

Compilation, statistical

Form of Storage:

AOSERP Report #9; Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project Complete.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 3.4

SYSTEM: AIR

TITLE:

Climatology of Low Level Air Trajectories in the Alberta Oil Sands Area

OBJECTIVE:

Develop a climatology of air trajectories in the Alberta Oil Sands Area.

PROPONENT:

Acres Consulting Service Ltd.

RESEARCHERS:

Mr. P.J. Denison
Acres Consulting Service Ltd.

LEVEL OF EFFORT TO DATE:

$10,000

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: January 1977

LOCATION:

AOSERP Study Area (see comment section below)

TYPES OF DATA COLLECTED:

Primary:
No new data collected. See comments.

Raw Form:

Microfilmed AES weather maps

Frequency:

N/A

Reduced Form:

Charts

Data Analysis:

Annual and seasonal frequencies

Form of Storage:

AOSERP Report #15; Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project Complete.

COMMENTS:

1968, 1973-74-75 AES weather maps used.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 3.5.1

SYSTEM: AIR

TITLE:

Review of Pollutant Transformation in the Alberta Oil Sands Area

OBJECTIVE:

Review pollutant transformation processes to determine the present state of knowledge in this field which may be applicable to the Alberta Oil Sands Study Area.

PROPONENT:

University of Alberta
Hydrocarbon Research Centre

RESEARCHERS:

Dr. O.D. Strausz
Dr. J.W. Bottenheim
University of Alberta

LEVEL OF EFFORT TO DATE:

$10,000

PROJECT STARTING DATE: December 1976

PROJECT COMPLETION DATE: January 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

AOSERP Report #25
Alberta Environment Library

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project Complete.

COMMENTS:

1976-77 | 31 March 1978 | ME 3.5.2

SYSTEM: AIR

TITLE:

Pollutant Transformation Processes

OBJECTIVE:

Conduct field measurements to determine SO_2 oxidation rates in the GCOS plume in winter.

PROPONENT:

Environment Canada,
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. M. Lusis and Dr. L. Barrie
Environment Canada

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: February 1977

PROJECT COMPLETION DATE: September 1977

LOCATION:

GCOS plant.

TYPES OF DATA COLLECTED:

Primary:

1. Concentration of SO_2 and particulate SO_4 in airborne samples.
2. SO_2 plume dispersion coefficients
3. Photochemical oxidation of SO_2.

Raw Form:

Field notes

Frequency:

Various

Reduced Form:

Tables

Data Analysis:

Computational, statistical (arithmetic means, standard deviations, dispersion predictions)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. M. Lusis
Atmospheric Environment Service
Downsview, Ontario
(416) 667-4882

PROJECT STATUS:

To be included in ME 1.5.2 report.

COMMENTS:

Field study carried out during the Air System Winter Field Study, February 1977.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 3.5.2

SYSTEM: AIR

TITLE:

SO_2 Oxidation in the Plumes from the GCOS Extraction Plant Under Summer Conditions

OBJECTIVE:

Collect and analyze air samples from the GCOS plume - June 1977

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. M. Lusis and Dr. L. Barrie
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$25,000

PROJECT STARTING DATE: June 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Mildred Lake Area (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:

1. Concentration of SO_2 and particulate SO_4 in airborne samples.
2. SO_2 plume dispersion coefficients.
3. Photochemical oxidation of SO_2.

Raw Form:

Field notes

Frequency:

Various

Reduced Form:

Tables

Data Analysis:

Computational, statistical (arithmetic means, standard deviations, dispersion coefficients)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. M. Lusis
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

To be included in ME 1.5.3 report.

COMMENTS:

Field study carried out during the Air System Summer Field Study, June 1977

1977-78

31 March 1978

ME 3.5.4

SYSTEM: AIR

TITLE:

Plume Chemical Reaction -- Modelling and Verification

OBJECTIVE:

Develop a comprehensive computer algorithm describing the chemical fate of pollutant gases from the Alberta Oil Sands development process.

PROPONENT:

Hydrocarbon Research Centre
University of Alberta
Edmonton, Alberta

RESEARCHERS:

Dr. O.P. Strausz and Dr. J. Bottenheim
University of Alberta
Edmonton, Alberta

LEVEL OF EFFORT TO DATE:

$16,000

PROJECT STARTING DATE: February 1978

PROJECT COMPLETION DATE: March 1979

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected at this time. See comments.

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage:

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project in progress.

COMMENTS:

1977-78

31 March 1978

ME 3.6

SYSTEM: AIR

TITLE:

Literature Review on Pollution Deposition Processes

OBJECTIVE:

Review published literature on pollutant dispersion processes and recommend the hypothesis, algorithm or model considered to be the most suitable for incorporation into a transport and diffusion model still to be developed. Review various field monitoring programs and design a program for the AOSERP Study Area.

PROPONENT:

Acres Consulting Service
Edmonton, Alberta

RESEARCHERS:

Mr. P.J. Denison
Acres Consulting Service
Edmonton, Alberta

LEVEL OF EFFORT TO DATE:

$35,000

PROJECT STARTING DATE: December 1977

PROJECT COMPLETION DATE: June 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project in progress.

COMMENTS:

1977-78

31 March 1978

ME 3.7

SYSTEM: AIR

TITLE:

Low Temperature Fog Observations

OBJECTIVE:

Observe and document occurrences of low temperature fog in the Mildred Lake Area. Determine the chemical composition of low temperature fog. Relate fog occurrence to meteorological conditions.

PROPONENT:

Environment Canada, Atmospheric Environment Service, Edmonton

RESEARCHERS:

Mr. B. Janz
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$2,000

PROJECT STARTING DATE: December 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Mildred Lake Area (See report for detailed location)

TYPES OF DATA COLLECTED:

Primary:
Occurrences and extent of low temperature fog

Raw Form:

Maps, Photographs

Frequency:

N/A

Reduced Form:

Maps, photographs

Data Analysis:

N/A

Form of Storage:

Text; incorporated in ME 1.0, 1.1, 1.2, 1.3 & 1.4, 1977-78 interim report.

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Janz
Atmospheric Environment Service
Edmonton, Alberta

(403) 437-1250

PROJECT STATUS:

Project Complete.

COMMENTS:

ME 3.7 in conjunction with ME 1.1, 1.2, 1.3 and 1.4.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 3.8.2

SYSTEM: AIR

TITLE:

Literature Survey and Synthesis of Turbulence Measurements

OBJECTIVE:

Not available (see project status)

PROPONENT:

N/A

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project deferred.

COMMENTS:

1977-78 | 31 March 1978 | ME 3.8.3

SYSTEM: AIR

TITLE:

Calculate Sigma Data for the Alberta Oil Sands Environmental Research Program Study Area

OBJECTIVE:

Examine all sets of turbulence and diffusion measurements made in the study area and calculate sigma values. Recommend alternative programs of measurement that will enable the calculation of sigma data with a higher level of precision.

PROPONENT:

Intera Environmental Consultants Ltd.
Calgary, Alberta

RESEARCHERS:

Dr. D.S. Davison & Dr. E. Levitt
Intera Environmental Consultants Ltd.
Calgary, Alberta

LEVEL OF EFFORT TO DATE:

$40,000

PROJECT STARTING DATE: January 1978

PROJECT COMPLETION DATE: August 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No new data collected. See comments.

Raw Form:

Turbulence and diffusion measurements

Frequency:

N/A

Reduced Form:

Summary Tables

Data Analysis:

Computational, statistical (arithmetic means, standard deviations)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project in progress.

COMMENTS:

Previous turbulence and diffusion measurements made in the AOSERP Study Area were used as primary data.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: ME 4.1

SYSTEM: AIR

TITLE:

Calculations of Annual Averaged Sulphur Dioxide Concentration at Ground Level in the AOSERP Study Area

OBJECTIVE:

Application of the Climatological Dispersion Model in order to estimate pollution impact areas on a climatological time scale.

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. J.L. Walmsley & Mr. D.L. Bagg
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$20,000

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: October 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No new data collected. See comments.

Raw Form:

Wind and stability data; topographic map

Frequency:

N/A

Reduced Form:

Tables and maps

Data Analysis:

Statistical (arithmetic means, standard deviations)

Form of Storage:

AOSERP Report #19; Alberta Environment Library, Edmonton

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. J.L. Walmsley
Atmospheric Environment Service
Downsview, Ontario
(416) 667-4882

PROJECT STATUS:

Project complete.

COMMENTS:

Wind and stability data were obtained from AES, Downsview, Ontario.

1976-77

31 March 1978

ME 4.2.1

SYSTEM: AIR

TITLE:

Review of Dispersion Models and Possible Applications in the Alberta Oil Sands Area

OBJECTIVE:

Critically survey existing models and adapt them to simulate the transport, dispersion, transformation and deposition of air pollutants on the local and regional scales.

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. J. Padro
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$10,000

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: November 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. J. Padro
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: ME 4.2.2

SYSTEM: AIR

TITLE:

Air Quality Simulation Modelling

OBJECTIVE:

Adapt CRSTER model to the AOSERP Study Area. Transfer LIRAQ from Lawrence Livermore Laboratories to AES for adaption to AOSERP Study Area.

PROPONENT:

Environment Canada
Atmospheric Environment Service
Downsview, Ontario

RESEARCHERS:

Dr. J. Padro and Mr. D. Bagg
Atmospheric Environment Service

LEVEL OF EFFORT TO DATE:

$40,000

PROJECT STARTING DATE: January 1978

PROJECT COMPLETION DATE: March 1980

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Mr. A.S. Mann, Research Manager
Air System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. J. Padro
Atmospheric Environment Service
Downsview, Ontario

(416) 667-4882

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: ME 5.0

SYSTEM: AIR

TITLE:

Climatology and Air Quality

OBJECTIVE:

Not available (see project status)

PROPONENT:

N/A

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project deferred.

COMMENTS:

INDEX: HUMAN

I. Human Environment (HE)

HE 1.1.1	Structure of a Traditional Baseline Data System
HE 1.1.2	Development of a Theoretical Social Indicators Research Model: A Feasibility Study
HE 1.2	Literature Review Related to Social Impact and Attendant Social and Personal Problems Associated with Resource Development
HE 1.2.1	The Impact of Resource Development on Individual and Family Well-Being
HE 1.2.6	An Exploratory Study of Deviance in the Athabasca Oil Sands Area
HE 2.1	Development of a Research Design Related to Archaeological Studies in the Athabasca Oil Sands Area
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HE 2.2.2	Community Studies: Fort McMurray, Anzac, Fort MacKay
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HS 10.1 (HE 2.5)*	Oral History of the Athabasca Oil Sands Region
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HS 40.1 (HE 4.1)*	Native Employment Patterns in the Athabasca Oil Sands Region
No Proj. # Allotted	Stackwall Building (Program Cooperative Project).

( )* Indicates former number. From March of 1977 the Human Environment (HE) became Human System (HS) and the numbering started from 10, with increments of 10.

I. HUMAN ENVIRONMENT - HE

Fiscal Year:
1976-77

Updated to:
31 March 1978

Project No.:
HE 1.1.1

SYSTEM: HUMAN

TITLE:

Structure of a Traditional Baseline Data System

OBJECTIVE:

Determine whether appropriate data exist for development of a comprehensive statistical baseline data system for the Athabasca Oil Sands Region. Review and assess data; evaluate weaknesses and deficiencies in existing data sources.

PROPONENT:

Population Research Laboratory
University of Alberta, Edmonton

RESEARCHERS:

Dr. Wayne W. McVey
Population Research Laboratory
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: December 1975

PROJECT COMPLETION DATE: December 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. Demographic
2. Social Data
3. Economic
4. Biophysical

Raw Form:

Data set information from various agencies, survey questionnaire in Appendix 1, AOSERP Report No. HE 1.1.1 (AOSERP Report #3)

Frequency:

Once

Reduced Form:

Evaluation sheet in AOSERP Report #3

Data Analysis:

Evaluation and recommendations

Form of Storage:

AOSERP Report #3, Alberta Environment Library

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HE 1.1.2

SYSTEM: HUMAN

TITLE:

Development of a Theoretical Social Indicators Research Model: A Feasibility Study

OBJECTIVE:

Determine the applicability of social indicators research model. Assess some past operational frameworks. Assess the relevant data in AOSERP. Determine feasibility of a social indicators model.

PROPONENT:

Urban Research and Consulting Limited
Edmonton, Alberta

RESEARCHERS:

Dr. Earle L. Snider,
Urban Research and Consulting Limited

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: February 1976

PROJECT COMPLETION DATE: June 1976

LOCATION:

N/A

TYPES OF DATA COLLECTED:

Primary:
Literature review of social indicators, theoretical essay

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Text

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year:	Updated to:	Project No.:
1975-76	31 March 1978	HE 1.2

SYSTEM: HUMAN

TITLE:

Literature Review Related to Social Impact and Attendant Social and Personal Problems Associated with Resource Development

OBJECTIVE:

Review the professional literature relevant to social impacts and to social and personal problems associated with resource development.

PROPONENT:
N/A See comments section.

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:
N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:
N/A

TYPES OF DATA COLLECTED:
N/A

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive.

COMMENTS:

Project not implemented.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HE 1.2.1

SYSTEM: HUMAN

TITLE:

The Impact of Resource Development on Individual and Family Well-Being

OBJECTIVE:

Identify and review the conceptual and empirical issues involved in adjustment of people to resource development and the adjustment among natives and migrants.

PROPONENT:

Dr. Lyle E. Larson
Family Research and Consulting Ltd.
Box 236, University Post Office
Edmonton, Alberta

RESEARCHERS:

Dr. L.E. Larson
Family Research and Consulting Ltd.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: February 1977

LOCATION:

N/A

TYPES OF DATA COLLECTED:

Primary:
Literature review of published and unpublished reports (500 references)
Secondary:
Selected statistical data on veneral dis. & illegitimacy & abortions in Ft. McMurray area.

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manger
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HE 1.2.6

SYSTEM: HUMAN

TITLE:

An Exploratory Study on Deviance in the Athabasca Oil Sands Area

OBJECTIVE:

Assess the social significance of deviance in resource communities in AOSERP Study Area.

PROPONENT:

Northern Development Group
Alberta Business Development and Tourism
Edmonton

RESEARCHERS:

Mr. Harvey L. Johnson
9924 - 82 Street
Edmonton, Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: November 1976

LOCATION:

Fort McMurray

TYPES OF DATA COLLECTED:

Primary:
Literature review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Interim report for HE 1.2.6
on file with Alberta Environment Library

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HE 2.1

SYSTEM: HUMAN

TITLE:

Development of a Research Design Related to Archaeological Studies in the Athabasca Oil Sands Area

OBJECTIVE:

Develop a plan for archaeological studies in the AOSERP Study Area, which would establish a field inventory of archaeological resource. Determine through sampling methods the age, size and content of archaeological sites, and protect or salvage sites which are in danger of being destroyed.

PROPONENT:

Alberta Culture Branch
Archaeological Survey of Alberta

RESEARCHERS:

Dr. J.F.V. Millar
University of Saskatchewan
Saskatoon, Saskatchewan

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: February 1975

PROJECT COMPLETION DATE: May 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature survey

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Text

Data Analysis:

N/A

Form of Storage:

AOSERP Report #10; Alberta Environment Library

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project Complete.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HE 2.2.1

SYSTEM: HUMAN

TITLE:

Research Design for the Study of Social Problems and Social Preventative and Rehabilitative Measures within the AOSERP Study Area

OBJECTIVE:

Develop a research design for the study of social problems in the AOSERP Study Area. Develop comprehensive system for assessment and analysis of human and social problems and preventative and rehabilitation measures.

PROPONENT:

Applied Research Associates Limited
Ponoka, Alberta

RESEARCHERS:

Dr. E.W. VanDyke
Applied Research Associates Limited

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: February 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature review

Raw Form:
N/A

Frequency:
N/A

Reduced Form:
Annotated bibliography

Data Analysis:
Development of a research design

Form of Storage:
Text;

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HE 2.2.2

SYSTEM: HUMAN

TITLE:

Community Studies: Fort McMurray, Anzac, Fort MacKay

OBJECTIVE:

Identify social problems experienced and/or perceived by the inhabitants of the AOSERP Study Area. Analysis of economic, political and social organization of communities involved. Evaluation of residents' value system.

PROPONENT:

Applied Research Associates Limited
Ponoka, Alberta

RESEARCHERS:

Dr. E.W. VanDyke, Mr. C. Loberg,
Applied Research Associates Limited
Ponoka, Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: May 1977

LOCATION:

Communities of Fort McMurray, Anzac and Fort MacKay

TYPES OF DATA COLLECTED:

Primary:
Social, political and economic views of community residents

Raw Form:

Transcripts of open-ended interviews, field notes on 43 families

Frequency:

Once

Reduced Form:

Composite transcript of all interviews

Data Analysis:

Interpretation of various responses

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HE 2.3

SYSTEM: HUMAN

TITLE:

Training and Employing Indigenous Workers: A Conceptual Scheme and a Proposal

OBJECTIVE:

Develop a model for training and employment of area manpower in AOSERP Study Area.

PROPONENT:

Dev-Cor Technical Services Inc.
Edmonton, Alberta

RESEARCHERS:

Ms. Marilyn I. Assheton-Smith
Dev-Cor Technical Services Inc.
Edmonton, Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: January 1976

PROJECT COMPLETION DATE: May 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected. Literature review only.

Raw Form:

N/A

Frequency:

Once

Reduced Form:

Annotated bibliography

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HE 2.4

SYSTEM: HUMAN

TITLE:

Athabasca Oil Sands Historical Research Project: A Design

OBJECTIVE:

Design a project to research the history of man and man's relationship with the environment in the Athabasca Oil Sands Area (historical relationship between the social, economic, cultural and biophysical aspects of the environment).

PROPONENT:

University of Alberta
Edmonton, Alberta

RESEARCHERS:

Mr. James M. Parker, University Archivist
Rutherford Library
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: November 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature review and bibliography

1. Government publications & primary sources
2. Published literature

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Partially annotated bibliography

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HE 2.4.2

SYSTEM: HUMAN

TITLE:

History of Oil Sands Region, 1890 - 1967

OBJECTIVE:

Not available

PROPONENT:

N/A See comments Section

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE:

PROJECT COMPLETION DATE:

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive.

COMMENTS:

This project was not implemented and is not listed in annual report.

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1978	HS 10.1

SYSTEM: HUMAN

TITLE:

Oral History of the Athabasca Oil Sands Region

OBJECTIVE:

Record on magnetic tape historical recollections of elders living in the area, to supplement the primary and secondary historical sources.

PROPONENT:

Boreal Institute
University of Alberta, Edmonton

RESEARCHERS:

James M. Parker, University Archivist
Rutherford South, University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: October 1977

PROJECT COMPLETION DATE: Decmeber 1978

LOCATION:

Fort McMurray, Anzac, Fort Mackay, Fort Chipewyan - AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Human habitat
2. Population migrations
3. Economic history
4. Society and government

Raw Form:

Interviews recorded on magnetic tape

Frequency:

One interview in each community

Reduced Form:

Text

Data Analysis:

None

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms.B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going.

COMMENTS:

HS 10.1 formerly HE 2.5

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HS 30.1

SYSTEM: HUMAN

TITLE:

Longitudinal Study of Social Characteristics and Personal Adjustment in the Athabasca Oil Sands Region

OBJECTIVE:

Determine the relationships between changes in social conditions and the social problems experienced in different stages of Alberta Oil Sands development.

PROPONENT:

Dr. E. Berger
Earl Berger Limited, Edmonton

RESEARCHERS:

Dr. E. Berger
Earl Berger Limited, Edmonton

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: November 1977

PROJECT COMPLETION DATE: March 1981

LOCATION:

Fort McMurray - AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected yet. The project is in the experimental design stage.

Raw Form:

Design of survey forms, questionnaires, etc.

Frequency:

Over 2 years, approximately 1,200 questionnaires.

Reduced Form:

Computer cards

Data Analysis:

Interpretation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going.

COMMENTS:

This project is divided into three phases extending over a period of four fiscal years. HS 30.1, formerly HE 3.1

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HS 40.1

SYSTEM: HUMAN

TITLE:

Native Employment Patterns in the Athabasca Oil Sands Region

OBJECTIVE:

Analyze native employment patterns. Assess the effectiveness of training-employment programs. Identify means which would help native people to adjust to life in the industrial environment.

PROPONENT:

Canadian Institute for Research in the Behavioral and Social Sciences, Calgary

RESEARCHERS:

Dr. Marvin Nygaard
Canadian Institute for Research in the Behavioral and Social Sciences, Calgary

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: December 1977

PROJECT COMPLETION DATE: December 1978

LOCATION:

Fort McMurray, Anzac, Fort MacKay, Fort Chipewyan, AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
In the experimental design stage. No data collected at the present time.

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

N/A

Form of Storage:

N/A

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going.

COMMENTS:

The project is divided into two phases: I - Research Design
II - Data Collection & Analyses

HS 40.1 formerly HE 4.1

Fiscal Year:
1975-76

Updated to:
31 March 1978

Project No.:
No number allotted

SYSTEM:

TITLE:

Stackwall Building (Program Cooperative Project)

OBJECTIVE:

Experiment in innovative construction methods, suited to the northern climate and using available materials. Build a prototype building.

PROPONENT:
AOSERP Management, in cooperation with Northeastern Alberta Region Commissioner's Office and University of Manitoba's Northern Housing Committee

RESEARCHERS:

Not available.

LEVEL OF EFFORT TO DATE:
Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:
AOSERP Study Area, field campsite.

TYPES OF DATA COLLECTED:

Primary:
Building is monitored for heating efficiency, temperature and moisture

Raw Form:
Instrument recorders

Frequency:
Variable

Reduced Form:
AOSERP Report

Data Analysis:
Interpretation and evaluation

Form of Storage:

AOSERP report on Stackwall Building, no number, on file with Alberta Environment Library

DATA INFORMATION CONTACT:

Ms. B. Kasinska-Banas, Reseach Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Ms. B. Kasinska-Banas, Research Manager
Human System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

INDEX: LAND

I. Terrestrial Fauna (TF)

TF 1.1	Moose, Caribou, Wolf Ecology
TF 1.1.1	Ungulates
TF 1.1.1	Analysis of the Moose Census and Associated Visibility Bias
TF 1.1.2	Migratory Birds
TF 1.1.4	Baseline Inventory - Furbearers
TF 1.1.5	Upland Birds - Inventory
TF 1.2	Endangered Species
TF 1.2	Relationships Between Habitat Strata, Forages and Carrying Capacity of Moose Range in Northern Alberta
TF 1.3	Recreational Use of Fish and Wildlife
TF 1.3	Carnivores
TF 1.4	Black Bear Ecology
TF 2.1	Winter Range and Wolf/Moose Hunting
TF 2.1	Avifauna Baseline Studies
TF 2.2	Rare and Sensitive Bird Species: White Pelicans
TF 2.3	Baseline States of Rare and Sensitive Species
TF 2.4	Adjustment of Trapping
TF 2.6	Intensified Wildlife Production
TF 3.1	Semi-Aquatic Mammals (Beaver, Muskrat, Mink, River Otter)
TF 3.2	Bear-Human Interactions
TF 5.1	Amphibians and Reptiles

Index: Land (cont'd)

TF 6.1	Determination of Current Consumptive and Non-Consumptive Wildlife and Fisheries Resource Use
TF 6.2	Impact of Tar Sands Development of the Fur Industry
TF 6.3	Integration of Remote Sensed and Field Acquired Information
TF 7.1.1	The Fort McMurray AOSERP Moose Census: Analysis and Interpretation of Results, 1976-77
TF 7.2.1	Data Interpretation - 1976 Moose Census
TF 8.1	Baseline Studies - Insect Fauna

I. TERRESTRIAL FAUNA - TF

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 1.1

SYSTEM: LAND

TITLE:

Moose, Caribou, Wolf Ecology

OBJECTIVE:

Describe the effect of development in the Alberta Oil Sands area on ungulates and carnivores.

PROPONENT:

Department of Wildlife Ecology
University of Wisconsin, Madison

RESEARCHERS:

Dr. L.B. Keith, Department of Wildlife Ecology, University of Wisconsin Madison

LEVEL OF EFFORT TO DATE:

$120,000

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: September 1978

LOCATION:

AOSERP Study Area, Rochester, Swan Hills

TYPES OF DATA COLLECTED:

Primary:

1. Animal census (numbers, distribution movements, habitat utilization, mortality and reproduction data)
2. Nutritional status, age, herd composition. 3. Drug effects

Raw Form:

Field notes, census sheets, photographs

Frequency:

Variable (bi-weekly)

Reduced Form:

Text, tables, graphs

Data Analysis:

statistical tabulation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going. 1976-77 and 1977-78 interim reports in review.

COMMENTS:

Project TF 2.1 (1975-76) incorporated in TF 1.1 in 1976-77 fiscal year.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 1.1.1

SYSTEM: LAND

TITLE:

Ungulates

OBJECTIVE:

Determine baseline density of moose throughout the AOSERP Study Area

PROPONENT:

Department of Wildlife Ecology
University of Wisconsin, Madison

RESEARCHERS:

Mr. Lloyd B. Keith, Mr. R. Fojker
Department of Wildlife Ecology
University of Wisconsin, Madison

LEVEL OF EFFORT TO DATE:

$19,000

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

Near Rochester, AOSERP Study Area - Moose; Birch Mountains, AOSERP Study Area-Caribou; near Ft. McKay AOSERP Study Area - Moose

TYPES OF DATA COLLECTED:

Primary:

1. Radiotelemetry information on moose, woodland caribou - movements & habitat type information
2. Reproduction, mortality

Raw Form:

Field notes, tracking data

Frequency:

Daily (fall and winter 1975-76)

Reduced Form:

Text

Data Analysis:

No analysis

Form of Storage:

Text; incorporated in TF 1.1 final report

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete (see comments section below).

COMMENTS:

Project TF 1.1.1 (1975-76) incorporated with TF 1.1 in 1976-77 fiscal year. It should be noted that the project on the following page has the same project number but the projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 1.1.1

SYSTEM: LAND

TITLE:

Analysis of the Moose Census and Associated Visibility Bias.

OBJECTIVE:

Develop an analysis model for moose census data. Describe the procedures necessary to obtain reliable moose census data using the model.

PROPONENT:

Interdisciplinary Systems Limited
Winnipeg, Manitoba

RESEARCHERS:

R. Dennis Cook, Department of Applied Statistics, University of Minnesota
J.O. Jacobson, Interdisciplinary Systems Limited, Winnipeg

LEVEL OF EFFORT TO DATE:

$5,500

PROJECT STARTING DATE: February 1978

PROJECT COMPLETION DATE: July 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No new data collected (see comments)

Raw Form:

Results from Aerial Moose Census TF 7.2.1 (1976-77)

Frequency:

N/A

Reduced Form:

Computer program and text

Data Analysis:

Mathematical model using TF 1.1 data

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in preparation.

COMMENTS:

Continuation (data analysis) of project TF 7.1.1 (1975-76) and 7.2.1 (1976-77). Census data from TF 7.2.1 was used for the development of the model. It should be noted that the project on the previous page has the same project number, but the projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 1.1.2

SYSTEM: LAND

TITLE:

Migratory Birds

OBJECTIVE:

Baseline studies on waterfowl, passerines and upland birds in the AOSERP Study Area for:

a. species composition
b. population densities
c. habitat requirements

PROPONENT:

Canadian Wildlife Service
Edmonton, Alberta

RESEARCHERS:

Mr. E. Hennan
Canadian Wildlife Service, Env. Canada

LEVEL OF EFFORT TO DATE:

$8,300

PROJECT STARTING DATE: August 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

AOSERP Study Area, Peace-Athabasca River Delta

TYPES OF DATA COLLECTED:

Primary:
1. Species composition
2. Population densities
3. Habitat requirements - relationships

Raw Form:

Field census, notes, tables and maps

Frequency:

Variable

Reduced Form:

Summary tables, illustrative maps

Data Analysis:

Classification, Enumeration

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Barry Munson
Canadian Wildlife Service
Edmonton, Alberta
(403) 425-5817

PROJECT STATUS:

Project complete (see comments below)

COMMENTS:

Project TF 1.1.2 incorporated in TF 2.1 in 1976-77 fiscal year.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 1.1.4

SYSTEM: LAND

TITLE:

Baseline Inventory - Furbearers

OBJECTIVE:

Conduct furbearer inventory in the AOSERP Study Area.

Analyze fur production records for registered traplines in the AOSERP Study Area, 1970-75.

PROPONENT:

Fish and Wildlife Division
Alberta Recreation, Parks and Wildlife
Edmonton, Alberta

RESEARCHERS:

Mr. Arlen W. Todd
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:

$7,000

PROJECT STARTING DATE: September 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Numbers of active beaver & muskrat houses, distribution & compilation of trapping records.
2. Densities & distribution of River Otter

Raw Form:

1. Aerial census of muskrat houses & food caches on 4-mi. sq. quadrant
2. Winter track observation of river otter

Frequency:

1. Once
2. Periodic

Reduced Form:

Text

Data Analysis:

Classification and enumeration

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Arlen W. Todd, Fish & Wildlife Div.
Alberta Recreation, Parks and Wildlife
Edmonton, Alberta

(403) 427-6750

PROJECT STATUS:

Final report in preparation.

COMMENTS:

Fiscal Year: 1975-76	*Updated to:* 31 March 1978	*Project No.:* TF 1.1.5

SYSTEM: LAND

TITLE:

Upland Birds - Inventory

OBJECTIVE:

Obtain data on species composition, population densities and habitat relationships of upland birds in the Alberta Oil Sands Area.

PROPONENT:

Canadian Wildlife Service
Edmonton, Alberta

RESEARCHERS:

Mr. A.B. Rippin, Mr. E. Hennan, Mr. B. Munson, Mr. J. Francis & Mr. K. Lumbis
Canadian Wildlife Service, Edmonton

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: January 1976

PROJECT COMPLETION DATE: March 1976

LOCATION:

AOSERP Study Area, 4 plots (see interim report for TF 1.1.5 for detailed map).

TYPES OF DATA COLLECTED:

Primary:
1. Species numbers and distribution
2. Habitat type, vegetation (dominant species, distribution)
3. Snow depth

Raw Form:

Field notes, census forms

Frequency:

4 surveys on each of 4 plots (January-March 1976)

Reduced Form:

Summary tables and illustrative maps

Data Analysis:

Classification and enumeration

Form of Storage:

Raw data on file with Canadian Wildlife Service, Edmonton; text incorporated in TF 2.1 final report

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Munson
Canadian Wildlife Service
Edmonton, Alberta

(403) 425-5817

PROJECT STATUS:

Project complete (see comments section).

COMMENTS:

This project was incorporated with Project TF 2.1 in 1976-77 fiscal year.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 1.2

SYSTEM: LAND

TITLE:

Endangered Species

OBJECTIVE:

Obtain baseline data on Peregrine Falcon, Golden Eagle, Bald Eagle, Osprey, Merlins, White Pelican, terns, some gull species, cranes and loons.

PROPONENT:

Canadian Wildlife Service,
Northern Research Centre, Edmonton

RESEARCHERS:

Mr. R.W. Fyfe and Mr. K. Bishoff
Canadian Wildlife Service

LEVEL OF EFFORT TO DATE:

$43,000

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Field census (species and distribution)

Raw Form:

Field notes, census forms

Frequency:

Various

Reduced Form:

Text

Data Analysis:

Categorization and enumeration

Form of Storage:

Text; incorporated in TF 2.2 and TF 2.3 reports; Raw data on file with Canadian Wildlife Service

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. R.W. Fyfe
Canadian Wildlife Service
Edmonton, Alberta

(403) 425-5886

PROJECT STATUS:

Project complete. (See Comments Section)

COMMENTS:

This project was incorporated with Project TF 2.2 and TF 2.3 in 1976-77 fiscal year. It should be noted that the project on the following page has the same project number but the projects are different in scope and were carried out in different fiscal years.

Fiscal Year:
1976-77

Updated to:
31 March 1978

Project No.:
TF 1.2

SYSTEM: LAND

TITLE:

Relationships Between Habitat Strata, Forages and Carrying Capacity of Moose Range in Northern Alberta

OBJECTIVE:

Delineate seasonal use of habitat and forages. Identify environmental variables affecting habitat use and evaluate the importance of each.

PROPONENT:

Cooperative Wildlife Resource Unit,
Colorado State University, Boulder

RESEARCHERS:

Mr. R. Nowlin and Mr. B. Gilbert
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: September 1975

PROJECT COMPLETION DATE: April 1977

LOCATION:

Ministik Lake Bird Sanctuary and
Muskeg River Drainage Area

TYPES OF DATA COLLECTED:

Primary:
1. Habitat
2. Forage utilization
Secondary
3. Snow depths
4. Slope aspect

Raw Form:

1, 2, 3 & 4. Field notes

Frequency:

Daily September through November and December through March

Reduced Form:

1 & 2. Text
3 & 4. Summary tables

Data Analysis:

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

TF 2.6 (1975-76) incorporated in TF 1.2 in 1976-77 fiscal year. It should be noted that the project on the previous page has the same project number, but the projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 1.3

SYSTEM: LAND

TITLE:

Recreational Use of Fish and Wildlife

OBJECTIVE:

Determine recreational use and potential value of fish and wildlife resources in the AOSERP Study Area.

PROPONENT:

Department of Rural Economy, University of Alberta, Edmonton

RESEARCHERS:

Mr. W. Phillips, Mr. L. Ewanyk and Mr. D. DePape, Dept of Rural Economy, University of Alberta, Edmonton

LEVEL OF EFFORT TO DATE:

$21,300

PROJECT STARTING DATE: January 1976

PROJECT COMPLETION DATE: February 1977

LOCATION:

AOSERP Study Area with comparison to baseline information available for Alberta.

TYPES OF DATA COLLECTED:

Primary:
Information on recreational use of fish and wildlife resources in the AOSERP Study Area as compared to Alberta as a whole.

Raw Form:

Questionnaires

Frequency:

Twice

Reduced Form:

Text; computer cards

Data Analysis:

Comparative tabulations

Form of Storage:

Text; incorporated in TF 6.1 report

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete. (See Comments Section)

COMMENTS:

This project was incorporated with project TF 6.1 in 1976-77 fiscal year. This project has the same project number as the project on the following page, but projects are different in scope and were performed in different fiscal years.

Fiscal Year:
1976-77

Updated to:
31 March 1978

Project No.:
TF 1.3

SYSTEM: LAND

TITLE:

Carnivores

OBJECTIVE:

Examine correlation between population indicators and known balck bear population levels. Incorporate new indicators. Project consists of two studies, one at Cold Lake, the other at Forest Hills in the AOSERP Study Area.

PROPONENT:

Department of Wildlife Ecology

University of Wisconsin
Madison, Wisconsin

RESEARCHERS:

Dr. R.L. Ruff
Department of Zoology
University of Wisconsin, Madison

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: November 1976

LOCATION:

Cold Lake and AOSERP Study Area (Fort Hills)

TYPES OF DATA COLLECTED:

Primary: 1. Movements 2. Habitat use 3. Numbers 4. Distribution 5. Serology relative to black bear. Secondary: 6. Mass production and utilization 7. Scat analysis 8. Behavioural responses to humans.

Raw Form:

Field census, field notes, computer sheets, photographs

Frequency:

Daily (variable)

Reduced Form:

Computer cards and text

Data Analysis:

Statistical (total numbers, % natality, % mortality, sex-age ratios)

Form of Storage:

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Final report on Fort Hills study area is in review. The Cold Lake data were included in a report for Gulf Oil Ltd. by the Canadian Wildlife Service. The Cold Lake Study was in corporated in TF 1.4 during the 1977-78 fiscal year.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 1.4

SYSTEM: LAND

TITLE:

Black Bear Ecology

OBJECTIVE:

Determine the responses of black bears to habitat alterations, environmental disturbances and open pit refuse disposal.

PROPONENT:

RESEARCHERS:

Dr. Robert L. Ruff, Mr. Barry F. Young
and Mr. Brian O. Pelchat
Dep·Wildlife Ecology, University of Wisc.

LEVEL OF EFFORT TO DATE:

$5,000

PROJECT STARTING DATE: September 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Cold Lake, Alberta (80 square miles)

TYPES OF DATA COLLECTED:

Primary: 1. Demographic data (numbers, distriburion, location activities, habitat use, disposal, behaviour. Secondary: Data on individual bears (age, body measurements, health, diet).

Raw Form:

1. Daily movements plotted on maps
2. Field notes

Frequency:

Daily (some hourly)

Reduced Form:

Computer forms

Data Analysis:

Statistical (arithmetic means, standard deviation)

Form of Storage:

Computer, standard forms

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in preparation.

COMMENTS:

TF 1.4 formerly TF 1.3 in 1976-77

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 2.1

SYSTEM: LAND

TITLE:

Avifauna Baseline Studies

OBJECTIVE:

Describe baseline states of bird resources in the Athabasca Oil Sands Area to provide information to assess the potential effect of industrial development on the bird resources and provide guidelines for habitat reclamation.

PROPONENT:

Canadian Wildlife Service,
9942 - 108 Street
Edmonton, Alberta

RESEARCHERS:

Mr. E. Hennan, Mr. B. Munson, Mr. J. Francis and Mr. K. Lumbis
Canadian Wildlife Service, Edmonton

LEVEL OF EFFORT TO DATE:

$ 75,000

PROJECT STARTING DATE: June 1976

PROJECT COMPLETION DATE: December 1979

LOCATION:

AOSERP Study Area, some adjacent areas (see TF 2.1 final report for map of locations)

TYPES OF DATA COLLECTED:

Primary:

1. Species diversity
2. Abundance
3. Habitat requirements & selection
4. Data on vegetation & habitat types

Raw Form:

Field notes on observations

Frequency:

Field season, daily (March - October)

Reduced Form:

Text; tables

Data Analysis:

Descriptions of habitat, habitat correlation coefficients

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Barry Munson
Canadian Wildlife Service
Edmonton, Alberta

(403) 425-5817

PROJECT STATUS:

Final report in review.

COMMENTS:

Project TF 1.1.5 (1975-76) and TF 1.1.2 (1975-76) are incorporated with TF 2.1 in 1976-77 fiscal year and LS 2.2.1 in 1977-78 and to LS 22.0 in 1978-79. It should be noted that the this project has the same project number as the project on the previous page, but the scopes of the projects are different and the fiscal years in which they were performed are different.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 2.1

SYSTEM: LAND

TITLE:

Winter Range and Wolf/Moose Hunting

OBJECTIVE:

Describe and quantify the baseline state of wolf and moose in the Alberta Oil Sands Area.

PROPONENT:

Department of Wildlife Ecology
University of Wisconsin, Madison

RESEARCHERS:

Mr. Tom Hauge, Department of Wildlife Ecology, University of Wisconsin

LEVEL OF EFFORT TO DATE:

$197,000

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary: 1. Numbers, distribution, movements, habitat utilization, mortality and reproduction Secondary: 2. Nutritional status, age, herd composition & structure, physiological characteristics & drug effect

Raw Form:

1. Field census forms and field notes
2. Field notes

Frequency:

Bi-weekly

Reduced Form:

Text, figures, tables

Data Analysis:

Statistical (percentages, total numbers)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in preparation.

COMMENTS:

TF 2.1 incorporated in TF 1.1 in 1976-77 fiscal year. This report has the same project number as the project on the following page, however, projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 2.2

SYSTEM: LAND

TITLE:

Rare and Sensitive Bird Species:
White Pelicans

OBJECTIVE:

Describe and evaluate baseline states of White Pelican. Determine breeding and foraging behaviour within the Alberta Oil Sands Study Area.

PROPONENT:

Canadian Wildlife Service, Northern Forest Research Centre, Edmonton

RESEARCHERS:

Mr. R. Beaver
Canadian Wildlife Service, Edmonton

LEVEL OF EFFORT TO DATE:

$ 40,000

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: March 1979

LOCATION:

Namur Lake (Birch Mountain Area), AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Patterns of behaviour
2. Breeding & foraging locations
3. Distribution and habitat requirements

Raw Form:

Field notes on observations.

Frequency:

Daily (April to September)

Reduced Form:

Text

Data Analysis:

Statistical tabulations

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Barry Munson, Canadian Wildlife Service
9942 - 108 Street
Edmonton, Alberta

(403) 425-5817

PROJECT STATUS:

Project on-going; 1976-77 and 1977-78 interim reports in review.

COMMENTS:

TF 2.2 formerly TF 1.2 in 1975-76 fiscal year, changed to TF 2.2 during 1976-77 fiscal year and to LS 22.2 in 1977-78 and to LS 22.0 in 1978-79.

Fiscal Year: 1977-78	*Updated to:* 31 March 1978	*Project No.:* TF 2.3

SYSTEM: LAND

TITLE:

Baseline States of Rare and Sensitive Species

OBJECTIVE:

Describe the potential impact of Alberta Oil Sands Development on rare and sensitive avian species and recommend reclamation and management strategies.

PROPONENT:

Canadian Wildlife Service
Edmonton, Alberta

RESEARCHERS:

Mr. David Ealey, Mr. R. Beaver and Mrs. Lizanne Johnston-Beaver
Canadian Wildlife Service

LEVEL OF EFFORT TO DATE:

$ 28,000

PROJECT STARTING DATE: May 1976

PROJECT COMPLETION DATE: January 1979

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Numbers, distribution, productivity and critical areas or rare and sensitive species

Raw Form:

Aerial transects, data sheets

Frequency:

Variable

Reduced Form:

Maps, text, standard census forms

Data Analysis:

Plotting, pattern interpretation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. B. Munson
Canadian Wildlife Service
Edmonton, Alberta
(403) 425-5817

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

TF 2.3 formerly TF 1.2 in 1975-76 to LS 22.3 in 1977-78 and to LS 22.0 in 1978-79.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: TF 2.4

SYSTEM: LAND

TITLE:

Adjustment of Trapping

OBJECTIVE:

Establish baseline information about current trapping practices in the region; predict future of trapping from trapper attitudes; propose management considerations that will lessen negative impact of tar sands development on trappers.

PROPONENT:

Faculty of Environmental Design
University of Calgary, Calgary

RESEARCHERS:

Mr. M. Fox and Dr. W.A. Ross
Faculty of Environmental Design
University of Calgary

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: May 197

PROJECT COMPLETION DATE: January 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Information on trapper attitudes, demography from surveys & questionnair

Secondary

2. Furbearing species of importance, analyses of fur sale records

Raw Form:

Survey, questionnaires, Fish and Wildlife Trapping Records

Frequency:

Once (approximately 70 trapper interviews)
Twice for approximately 35 trappers

Reduced Form:

Summary tables, text

Data Analysis:

Statistical (correlations, t-test, chi-square)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review at present time.

COMMENTS:

Project TF 2.4 (1975-76) was incorporated with Project TF 6.2 in 1976-77 fiscal year.

Fiscal Year:	*Updated to:*	*Project No.:*
1975-76	31 March 1978	TF 2.6

SYSTEM: LAND

TITLE:

Intensified Wildlife Production

OBJECTIVE:

Describe seasonal movements of moose. Delineate seasonal food habits. Relate utilization of habits and forage species to their availability.

PROPONENT:

Cooperative Wildlife Resources Unit
Colorado State University
Boulder, Colorado

RESEARCHERS:

Mr. R. Nowlin
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:

$26,000

PROJECT STARTING DATE: September 1975

PROJECT COMPLETION DATE: March 1977

LOCATION:

Ministik Lake Bird Sanctuary, Alberta

TYPES OF DATA COLLECTED:

Primary:
1. Habitat and forage utilization
Secondary
2. Snow depths

Raw Form:

Telemetry sheets and field notes

Frequency:

Daily, September - November and December - March

Reduced Form:

Summary tables

Data Analysis:

Map delineation, interpretation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Interim report in review.

COMMENTS:

TF 2.6 (1975-76) incorporated in TF 1.2 in 1976-77.

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1978	TF 3.1

SYSTEM: LAND

TITLE:

Semi-aquatic Mammals (Beaver, Muskrat, Mink, River Otter)

OBJECTIVE:

Establish baseline information for beaver, muskrat, mink and river otter. Determine habitat requirements for each species. Establish criteria for protection and rehabilitation through field work and literature review.

PROPONENT:

Department of Zoology
University of Guelph, Guelph

RESEARCHERS:

Dr. F.F. Gilbert, Department of Zoology
University of Guelph, Guelph, Ontario

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: February 1978

LOCATION:

Muskeg River drainage, Dover River drainage (lake complex); Syncrude Lease No. 17. See final report for detailed location map.

TYPES OF DATA COLLECTED:

Primary:
1. Distribution of each species
2. Habitat descriptions
3. Water conditions
4. Food availability and utilization

Raw Form:

See final report for samples of survey forms

Frequency:

Intermittent, field season 1976-77; 77-78

Reduced Form:

Interim and final report TF 3.1; tables, graphs, maps, etc.

Data Analysis:

Tabulations, descriptions

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report not complete.(see comments section).

COMMENTS:

Project to be continued with new contractor in 1978-79 fiscal year.

Fiscal Year: 1975-76	*Updated to:* 31 March 1978	*Project No.:* TF 3.2

SYSTEM: LAND	*TYPES OF DATA COLLECTED:* Primary: Literature review of number, types and reasons of interactions; and methods of garbage disposal and alternatives *Raw Form:* Fish and Wildlife records *Frequency:* N/A *Reduced Form:* Selected report and bibliography *Data Analysis:* Interpretation *Form of Storage:* Text
TITLE: Bear-Human Interactions	
OBJECTIVE: Define the extent of bear-human interaction problems in North America through literature review. Recommend control alternatives. Suggest areas of further research.	
PROPONENT: Ms. D.E. Loucks Petro Canada, P.O. Box 2844 Calgary, Alberta	
RESEARCHERS: Ms. D.E. Loucks Petro Canada, Calgary	*DATA INFORMATION CONTACT:* Dr. R. A. Hursey, Research Manager Land System, AOSERP Edmonton, Alberta (403) 427-3943
LEVEL OF EFFORT TO DATE: $10,300	
PROJECT STARTING DATE: February 1976	*DATA ACCESS CONTACT:* Dr. R. A. Hursey, Research Manager Land System, AOSERP Edmonton, Alberta (403) 427-3943
PROJECT COMPLETION DATE: April 1976	
LOCATION:	*PROJECT STATUS:* Final report in preparation.
COMMENTS:	

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No : TF 5.1

SYSTEM: LAND

TITLE:

Amphibians and Reptiles

OBJECTIVE:

Determine species composition and distribution. Identify habitat types. Document metamorphisis, fecundity and spawning dates. Examine potential impacts of disturbance.

PROPONENT:

University of Alberta
Edmonton, Alberta

RESEARCHERS:

Dr. W. Roberts, Dr. V. Levin and
Mr. L. Brusnyk, Department of Zoology
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: June 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary: 1. Specimens of species present 2. Abundance 3. Age 4. Developmental stage 5. Growth 6. Habitat use 7. Data on reproductive cycle. Secondary: 8. Physio-chemical properties of water 9. Common vegetation

Raw Form:

Field notes

Frequency:

June, July and August 1976

Reduced Form:

Summary tables, text

Data Analysis:

Statistical (percentages, significant levels, categorization)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: TF 6.1

SYSTEM: LAND

TITLE:

Determination of Current Consumptive and Non-consumptive Wildlife and Fisheries Resource Use

OBJECTIVE:

Determine the recreational use and potential value of fish and wildlife resources in the AOSERP Study Area.

PROPONENT:

Department of Rural Economy
University of Alberta, Edmonton

RESEARCHERS:

Dr. W. Phillips, Mr. D. DePape & Mr. L. Ewanyk, Department of Rural Economy
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: January 1976

PROJECT COMPLETION DATE: February 1977

LOCATION:

AOSERP Study Area and throughout Alberta

TYPES OF DATA COLLECTED:

Primary:
Information on the participants and the activity throughout Alberta as compared to the AOSERP Study Area

Raw Form:

Questionnaires, see appendices in Volume I (February 1977) report

Frequency:

Once (questionnaires); Periodical interviews following questionnaires

Reduced Form:

Tables, maps, text

Data Analysis:

Statistical grouping

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

TF 1.3 (1975-76) incorporated with TF 6.1 (1976-77).

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 6.2

SYSTEM: LAND

TITLE:

Impact of Tar Sands Development on the Fur Industry

OBJECTIVE:

Establish baseline information; predict the future of trapping in the region and prepare management strategy to minimize the negative effects of Alberta Oil Sands development.

PROPONENT:

Faculty of Environmental Design
University of Calgary, Calgary

RESEARCHERS:

Mr. M. Fox and Dr. W.A. Ross
Faculty of Environmental Design,
University of Calgary

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: May 1976

PROJECT COMPLETION DATE: January 1978

LOCATION:

Fort McMurray, Anzac, Fort Mackay and environs

TYPES OF DATA COLLECTED:

Primary:
1. Trapper interviews, trapline visit

Secondary:
2. Fish and Wildlife trapping records

Raw Form:

1. Questionnaires, longhand notes
2. Original field notes

Frequency:

1. Once (approximately 70 trappers); Twice (approximately 35 trappers)
2. N/A

Reduced Form:

Computer cards, summary tables

Data Analysis:

Statistical (correlation, t-test, chi-square)

Form of Storage:

Text; Computer Data available from University of Calgary

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

TF 2.4 (1975-76) incorporated in TF 6.2 (1976-77).

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 6.3

SYSTEM: LAND

TITLE:

Integration of Remote Sensed and Field Acquired Information

OBJECTIVE:

Compare various remote sensing methods. Determine methods to integrate remotely sensed and field acquired data.

PROPONENT:

Faculty of Environmental Design
University of Calgary, Calgary

RESEARCHERS:

Dr. W.A. Ross and
Mr. S. Aronoff, Faculty of Environmental Design, University of Calgary

LEVEL OF EFFORT TO DATE:

Not Availalbe

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: January 1978

LOCATION:

GCOS and Syncrude plant sites and south of Gregoire Lake.

TYPES OF DATA COLLECTED:

Primary:
Vegetation and remotely sensed data

Raw Form:

False and true color aerial photography, Landsat composite imagery

Frequency:

Once

Reduced Form:

Description of vegetation communities and photographs

Data Analysis:

Digital (density)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: TF 7.1.1

SYSTEM: LAND

TITLE:

The Fort McMurray AOSERP Moose Census: Analysis and Interpretation of Results, 1976-77

OBJECTIVE:

Test the census procedure initiated in 1976 on the same study area (TF 7.2.1). Test a visibility bias adjustment model. Provide a statistically reliable 1977 moose population estimate for use in long-term population studies (TF 1.1)

PROPONENT:

Interdisciplinary Systems Limited
Winnipeg, Manitoba

RESEARCHERS:

Mr. R.D. Cook, University of Minnesota

Mr. J.O. Jacobson, Interdisciplinary Systems Limited, Winnipeg

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: January 1977

PROJECT COMPLETION DATE: March 1977

LOCATION:

Fort Hills region

TYPES OF DATA COLLECTED:

Primary:
Moose census of 648 sq. mi. study area. Density, distribution, total numbers of moose, visibility bias

Raw Form:

Standard field census forms, flight log

Frequency:

Daily (February 20-28, 1977)

Reduced Form:

Tables.

Data Analysis:

Statistical (tables, estimates of population, recommendations)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77
Updated to: 31 March 1978
Project No.: TF 7.2.1

SYSTEM: LAND

TITLE:

Data Interpretation - 1976 Moose Census

OBJECTIVE:

Test the feasibility and statistical adequacy of an aerial quadrant census for moose in the AOSERP Study Area. Apply stratified random census procedures to the 1976 aerial moose census in the AOSERP Study Area

PROPONENT:

Interdisciplinary Systems Ltd.
Winnipeg, Manitoba

RESEARCHERS:

Mr. J.O. Jacobson
Interdisciplinary Systems Ltd.

LEVEL OF EFFORT TO DATE:
Not available

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. Total moose numbers
2. Density per habitat type
3. Group size

Raw Form:

1, 2 & 3. See appendices in the AOSERP report for data collection forms

Frequency:

1, 2 & 3. Daily in January

Reduced Form:

Tables, maps, diagrams, graphs

Data Analysis:

Statistical (percentages data fluctuations)

Form of Storage:

Final report TF 7.2.1 on file with Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: TF 8.1

SYSTEM: LAND

TITLE:

Baseline Studies - Insect Fauna

OBJECTIVE:

Determine the need for research on aquatic insect fauna:

- current state of knowledge
- importance of aquatic insect fauna to the biological community
- probablilities of interactions of aquatic insect fauna with reclamation activities

PROPONENT:

Dr. A. Nimmo
Environment Canada
Edmonton, Alberta

RESEARCHERS:

Dr. A. Nimmo
Environment Canada

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: February 1978

PROJECT COMPLETION DATE: March 1980

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
No data collected in initial phase of of project (see comments)

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. A.P. Nimmo, Environment Canada
Fisheries and Marine Branch
Edmonton, Alberta

(403) 435-7375

PROJECT STATUS:

Project on-going. 1977-78 interim report in preparation.

COMMENTS:

Project initiated in February 1978.

Index: Land (cont'd)

II. Vegetation (VE)

VE 1	Literature Review
VE 2	Landscape Classification and Mapping
VE 2.1	Soils Inventory of the Oil Sands Area
VE 2.2	Preliminary Vegetation Survey of the Athabasca Oil Sands
VE 2.3	Vegetation Mapping of the AOSERP Study Area
VE 2.3.1	Phase I: Habitat Mapping of the Alberta Oil Sands Environmental Research Program Study Area
VE 2.3.2	Ecological Habitat Mapping of the Oil Sands Area - Phase II
VE 3.1	Symptomology and Threshold Levels of Air Pollutant Injury to Vegetation
VE 3.2	Threshold Levels of SO_2 Injury
VE 3.3	Physiology and Mechanisms of Air-borne Pollutant Injury
VE 3.4	Ecological Benchmarking and Biomonitoring for Detection of Air-borne Pollutant Effects on Vegetation and Soils
VE 3.5	Air Pollution in the Athabasca Oil Sands - Effects on Vegetation, 1976 - Reconnaissance Survey/Research Design and Development
VE 4.1	Soils Research Related to Vegetation of the Oil Sands Area
VE 4.2	The Rate and Extent of Soil Changes Induced by Sulphur in the Oil Sands Area
VE 5.2	Characterization and Utilization of Peat in the Oil Sands Area
VE 6.1	Long-Term Prediction of Vegetation Performance for Dike Management

Index: Land (cont'd)

VE 7.1	Reclamation for Afforestation by Suitable Native and Introduced Tree and Shrub Species
VE 7.1.1	Control of Small Mammals on Reclamation Areas in the AOSERP Study Area - Literature Review and Problem Analysis
VE 7.1.1	Continued Monitoring of the Harmful Small Mammal Problem in the Alberta Oil Sands Reclamation and Revegetation Program
VE 7.2	Controlled Environmental Trials of Species Suitable for Revegetation
VE 7.3	Field Trials for Test Plant Communities
VE 7.4	Technology of Seed Production and Handling
VE 7.6	Evaluation of AOSERP Reclamation Research Progress and Needs
VE 9.1	Re-instatement of Biological Activity in Disturbed Soils and Mine Wastes

II. VEGETATION - VE

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: VE 1

SYSTEM: LAND

TITLE:

Literature Review

OBJECTIVE:

Compile existing information relevant to revegetation of the Alberta Oil Sands Area.

PROPONENT:

N/A See comments.

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

None

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage:

Alberta Environment Library

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project Inactive

COMMENTS:

The project was never initiated as a separate identity - individual literature reviews were carried out under various research projects.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: VE 2

SYSTEM: LAND

TITLE:

Landscape Classification and Mapping

OBJECTIVE:

Develop a design for a complete vegetation and terrain inventory for the Alberta Oil Sands Area.

PROPONENT:

Alberta Energy and Natural Resources

Reid, Collins and Associates Ltd.
Edmonton

RESEARCHERS:

Dr. H. Buns
Reid, Collins and Associates

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: October 1975

PROJECT COMPLETION DATE: December 1975

LOCATION:

Edmonton

TYPES OF DATA COLLECTED:

Primary:
Interviews with potential users and listing of existing inventory information

Raw Form:

Interviews

Frequency:

Once per potential user

Reduced Form:

Proposal for vegetation and terrain inventory design

Data Analysis:

Interpretation and evaluation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 2.1

SYSTEM: Land

TITLE:

Soils Inventory of the Oil Sands Area

OBJECTIVE:

Provide baseline pre-mining inventory data on soils and landforms for the AOSERP Study Area.

PROPONENT:

Soil Survey Division
Alberta Research Council
Edmonton, Alberta

RESEARCHERS:

L.W. Turchenek, J.D. Lindsay
Soil Survey Division
Alberta Research Council

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: May 1976

PROJECT COMPLETION DATE: March 1980

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Site inspection and classification of soils, landforms; description of plant communities.

Raw Form:

See AOSERP Report No. 28 for sample of data collection sheets.

Frequency:

Intermittent

Reduced Form:

Delineation and naming of land systems on aerial photos.

Data Analysis:

Chemical and physical analyses of soil samples

Form of Storage:

AOSERP Report No. 28; Alberta Environment Library; 1:50,000 maps, loose leaf soil descriptions, card file; Offices of Soils Division, Alberta Research Council.

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

J.D. Lindsay
Soils Division, Alberta Research Council
14605 - 118 Avenue
Edmonton, Alberta (403) 432-8064

PROJECT STATUS:

1976-77 and 1977-78 interim reports in revi Project on-going.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: VE 2.2

SYSTEM: LAND

TITLE:

Preliminary Vegetation Survey of the Athabasca Oil Sands

OBJECTIVE:

Obtain preliminary baseline pre-mining inventory data on the vegetation of AOSERP Study Area.

PROPONENT:

Intraverda Plant Systems Ltd.
Edmonton, Alberta

RESEARCHERS:

Dr. P. Stringer
Intraverda Plant Systems Ltd.
Edmonton, Alberta

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: June 1975

PROJECT COMPLETION DATE: April 1976

LOCATION:

84 sites within Twp. 85-103, Rge 6-12, W4 (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Vascular plant structure & species composition

Secondary:
2. Presence of prominant lichens and bryophytes

Raw Form:

Field notes (descriptions, measurements, photographs)

Frequency:

Once (August 19 to September 3, 1975)

Reduced Form:

Text, tables, maps, listings of lichens and bryophytes found and location

Data Analysis:

AOSERP Report #4

Form of Storage:

AOSERP Report #4; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: VE 2.3

SYSTEM: LAND

TITLE:

Vegetation Mapping of the AOSERP Study Area

OBJECTIVE:

Obtain aerial photography data on vegetation and habitats in the AOSERP Study Area. The information obtained will aid in the future selection or expansion of research sites, provide background data for future impact studies.

PROPONENT:

Northwest Survey (Yukon) Corporation Ltd.
Whitehorse, Yukon

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: August 1977

PROJECT COMPLETION DATE: September 1977

LOCATION:

McCleland Lake Area in the AOSERP Study Area.

TYPES OF DATA COLLECTED:

Primary:
True and false color and infrared photography; 1:15,000

Raw Form:

Negatives and prints

Frequency:

Once

Reduced Form:

N/A

Data Analysis:

None

Form of Storage:

Negatives in the National Airphoto Library, Ottawa

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

National Airphoto Library
615 Booth Street
Ottawa, Ontario K1A 0E9

(613) 995-4560

PROJECT STATUS:

Project complete.

COMMENTS:

No report available. Project was to obtain aerial photographs only.

Fiscal Year:	*Updated to:*	*Project No.:*
1977-78	31 March 1978	VE 2.3.1

SYSTEM: Land

TITLE:

Phase I: Habitat Mapping of the Alberta Oil Sands Environmental Research Program Study Area

OBJECTIVE:

Obtain baseline aerial photography of the AOSERP Study Area. Prepare ecological habitat maps (1:50,000). Evaluate remote sensing techniques for application to mapping and monitoring in the study area.

PROPONENT:

INTERA Environmental Consultants Ltd.
Calgary, Alberta

RESEARCHERS:

Mr. M.D. Thompson, Mr. M.C. Wride and Mr. M.E. Kirby
INTERA Environmental Consultants Ltd.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: November 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

True color and false color infrared photography. Analysis of suitability of various types of remote sensing data and interpretive techniques to ecological habitat mapping.

Raw Form:

Maps, Aerial Photographs, Landsat Images

Frequency:

July, August, October, 1977

Reduced Form:

Text, Tables, Maps, Photographs

Data Analysis:

Digitization, photo interpretation

Form of Storage:

Maps, AOSERP Report No. 31

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

On-going.

COMMENTS:

1977-78 interim report will be published.

Fiscal Year:	*Updated to:*	*Project No.:*
1977-78	31 March 1978	VE 2.3.2

SYSTEM: Land

TITLE:

Ecological Habitat Mapping of the Oil Sands Area - Phase II

OBJECTIVE:

Refine static habitat typed defined by VE 2.3.1 on areas of identified high priority.

PROPONENT:

N/A. See comments section.

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

N/A

Form of Storage:

N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive - deferred to 1979-80.

COMMENTS:

Project has not been initiated; waiting completion of Phase I (see VE 2.3.1).

Fiscal Year:
1977-78

Updated to:
31 March 1978

Project No.:
VE 3.1

SYSTEM: LAND

TITLE:

Symptomology and Threshold Levels of Air Pollutant Injury to Vegetation

(See comments)

OBJECTIVE:

Describe visible symptoms in relation to concentration. Development of techniques to identify and assess impact on vegetation. Determine threshold levels of injury.

PROPONENT:

Canadian Forest Service, Northern Forest Research Centre, Edmonton

RESEARCHERS:

Dr. S.S. Malhotra
Northern Forest Research Centre
Environment Canada

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1980

LOCATION:

Various sites at Fort McMurray and Northern Forest Research Centre, Edmonton

TYPES OF DATA COLLECTED:

Primary:
Visual symptoms of growth, physiological changes (photosynthesis and respiration rates), threshold levels of injury (visual symptoms).

Raw Form:

Photographs, herbarium specimens of injured vegetation

Frequency:

Monthly, yearly

Reduced Form:

Notes, tables, figures, scientific publications

Data Analysis:

Visual analysis

Form of Storage:

Text; Raw Data - Northern Forest Research Centre, Edmonton

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. S.S. Malhotra
Northern Forest Research Centre
Edmonton, Alberta

(403) 435-7210

PROJECT STATUS:

Project on-going; 1975-76, 1976-77 and 1977-78 interim reports in revi

COMMENTS:

This project is in conjunction with VE 3.2, 3.3, 3.4. VE 3.1 previous title - Symptomology of SO_2 Injury to Vegetation.

Fiscal Year: 1975-76	*Updated to:* 31 March 1978	*Project No.:* VE 3.2

SYSTEM: LAND

TITLE:

Threshold Levels of SO_2 Injury

OBJECTIVE:

Obtain diagnostic, sensitivity and tolerance information on SO_2 injury to plants.

PROPONENT:

Canadian Forest Service
Northern Forest Research Centre,
Edmonton

RESEARCHERS:

Dr. S.S. Malhotra
Northern Forest Research Centre, Edmonton

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: August 1976

LOCATION:

Northern Forest Research Centre, Edmonton

TYPES OF DATA COLLECTED:

Primary:
1. SO_2 concentrations
2. Effect on plants

Raw Form:

Laboratory notes

Frequency:

Up to 40-day experiments. Six broad forest species were fumigated up to 40 days at .34 mg/l SO_2.

Reduced Form:

Text

Data Analysis:

Comparisons of SO_2 effects

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. S.S. Malhotra
Northern Forest Research Centre
Edmonton, Alberta

(403) 435-7210

PROJECT STATUS:

Project complete. 1975-76 interim report in review (see comments section below).

COMMENTS:

VE 3.2 was combined with VE 3.1 in August 1976. New number for reference is VE 3.1.

Fiscal Year: 1976-77; 77-78

Updated to: 31 March 1978

Project No.: VE 3.3

SYSTEM: Land

TITLE:

Physiology and Mechanism of Airborne Pollutant Injury

(see comments section)

OBJECTIVE:

Determine the biochemical and cellular physiological response of candidate revegetation species to sulphur dioxide and other airborne pollutants.

PROPONENT:

Northern Forest Research Centre
Edmonton, Alberta

RESEARCHERS:

Dr. S.S. Malhotra
Northern Forest Research Centre
Edmonton

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1980

LOCATION:

Edmonton (laboratory; environmental growth chamber)

TYPES OF DATA COLLECTED:

Experimental results with pine needles exposed to SO_2 in aqueous solution.

Raw Form:

Results of experiments, notes, experiment logs

Frequency:

Variable

Reduced Form:

Text, Tables

Data Analysis:

Comparisons - variable concentrations of SO_2 - effect on pine needles

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. S.S. Malhotra
Northern Forest Research Centre
Edmonton, Alberta
(403) 435-7210

PROJECT STATUS:

Project on-going. 1975-76, 1976-77 and 1977-78 interim reports in review.

COMMENTS:

See also VE 3.1, 3.2 and 3.4.
VE 3.3 previous title: Physiology and Mechanism of SO_2 Injury.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 3.4

SYSTEM: Land

TITLE:

Ecological Benchmarking and Biomonitoring for Detection of Airborne Pollutant Effects on Vegetation and Soils

OBJECTIVE:

Identify ecological benchmarking and biomonitoring. Describe baseline conditions based on vegetation and soil descriptions. Periodic resampling will aid in definition of air pollutant impingement and rate of uptake by forest species.

PROPONENT:

Canadian Forest Service
Northern Forest Research Centre, Edmonton

RESEARCHERS:

Dr. S.S. Malhotra, J. Baker,
Dr. P.A. Addison
Northern Forest Research Centre, Edmonton

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1980

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary: 1. Chemical analyses of soil & vegetation for sulfur and heavy metals. 2. Community analyses and physiological condition. 3. Physical SO_2 present in gas and precipitation.

Raw Form:

1 & 3. Lab notes
2. Field notes

Frequency:

Intermittent

Reduced Form:

Tables, Figures, Text

Data Analysis:

Interpretation

Form of Storage:

Text; Raw Data - Northern Forest Research Center

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. S.S. Malhotra
Northern Forest Research Centre
Edmonton, Alberta
(403) 435-7210

PROJECT STATUS:

Project on-going. 1975-76, 1976-77 and 1977-78 interim reports in review.

COMMENTS:

See also VE 3.1, VE 3.2 and VE 3.3.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: VE 3.5

SYSTEM: Land

TITLE:

Air Pollution in the Athabasca Oil Sands, Effects on Vegetation, 1976 - Reconnaissance Survey/Research Design and Development

OBJECTIVE:

Determine the extent of transferability of research, design and technology developments in the Whitecourt area of Alberta to the Athabasca Oil Sands.

PROPONENT:

University of Calgary
Environmental Sciences Centre

RESEARCHERS:

Dr. A.H. Legge
University of Calgary
Environmental Sciences Centre, Calgary

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

AOSERP Study Area, Whitecourt Area

TYPES OF DATA COLLECTED:

No data collected. Research design only.

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete; see comments.

COMMENTS:

Report will be included as a part of the Whitecourt Environmental Study Group final report.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 4.1

SYSTEM: LAND

TITLE:

Soils Research Related to Vegetation of the Oil Sands Area (see comments for previous title)

OBJECTIVE:

Examine soil properties and processes related to revegetation of the tar sands area for the effect of clay lenses on (i) the formation of perched water tables in tailings, (ii) chemical, physical and microbial properties of tailings, (iii) nutrient cycling in fertilized soils.

PROPONENT:

Department of Soil Science,
University of Alberta, Edmonton

RESEARCHERS:

Mr. L.W. Turchenek, Mr. A.H. MacLean, and Mr. W.B. McGill
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1979

LOCATION:

Laboratory work done in Edmonton

TYPES OF DATA COLLECTED:

Primary:
1. Field decomposition rates
2. Soil temperatures
3. Soil moisture
4. Leaching rates

Raw Form:

1, 2 & 3. Field notes, soil samples
4. Photographs

Frequency:

1, 2 & 3. Variable (bi-weekly to semi-annually)
4. Intermittent

Reduced Form:

1, 2 & 3. Text; tables, graphs
4. Photographs

Data Analysis:

Tabulations, interpretation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going. All interim reports in review.

COMMENTS:

VE 4.1 (1976-77) interim reports are incorporated with the interim report for VE 4.2 (1976-77). VE 4.1 (1975-76) title: Study of the GEneral Properties and Reactions of Disturbed and Non-disturbed Soil Materials.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 4.2

SYSTEM: LAND

TITLE:

The Rate and Extent of Soil Changes Induced by Sulphur in the Oil Sands Area (see comments section)

OBJECTIVE:

Determine the impact of sulphur dioxide on soils (rate of SO_2 uptake, effects on soil pH, available sulphur, biological activity, SO_2 damage to soils)

PROPONENT:

Department of Soil Science
(Alberta Institute of Pedology)
University of Alberta, Edmonton

RESEARCHERS:

Dr. M.Nyborg
Department of Soil Science
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1979

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. Acidity levels and SO_2 concentration in rainfall, through fall & stem flow.
2. Analyses of exposed soils, mosses

Raw Form:

Field notes, laboratory experiments, photographs

Frequency:

Periodically, rainfall weekly

Reduced Form:

Tables, text, maps and graphs

Data Analysis:

Statistical tabulations (arithmetic means, standard deviations)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going. All interim reports in review.

COMMENTS:

Interim report VE 4.2 (1976-77) is incorporated with the Interim Report for VE 4.1 (1976-77) on file with Alberta Environment Library. Title of Interim Report: Impact of SO_2 on Soils, and SO_2 transformation in soils.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 5.2

SYSTEM: LAND

TITLE:

Characterization and Utilization of Peat in the Oil Sands Area

OBJECTIVE:

Study chemical, physical and biological properties of stored peat. Evaluate the rate of biodegradation in stored peat.

PROPONENT:

Alberta Research Council,
Soils Division, Edmonton

RESEARCHERS:

Mr. K. Kong, Mr. J.D. Lindsay, Mr. W.B. McGill, Soils Division
Alberta Research Council

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1979

LOCATION:

AOSERP Study Area (Syncrude Lease No. 17, Mildred Lake Research Station, Evansburg)

TYPES OF DATA COLLECTED:

Primary: 1. Physical, chemical, biological and biochemical analyses of properties of peat. 2. Soil temperature 3. Soil moisture. 4. Hydraulic conductivity

Raw Form:

1. Laboratory analyses
2, 3 & 4. Field notes and measurements

Frequency:

1. Annually
2. Monthly
3 & 4. Bi-monthly

Reduced Form:

Text; tables, diagrams, graphs

Data Analysis:

Statistical (arithmetic means, standard deviations, significance levels)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. J.D. Lindsay, Soils Division
Alberta Research Council
Edmonton, Alberta
(403) 432-8064

PROJECT STATUS:

Project on-going. All interim reports in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 6.1

SYSTEM: LAND

TITLE:

Long-term Predictions of Vegetation Performance for Dike Management

OBJECTIVE:

Develop and evaluate potential management strategies for long-term maintenance of vegetation on steep-sided dikes created by mining operation, using ecophysiological methods that incorporate mathematical modelling through regression analysis.

PROPONENT:

Department of Botany, University of Alberta, Edmonton

RESEARCHERS:

Dr. L.C. Bliss and Dr. D.W. Whitfield
Department of Botany, University of Alta.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1978

LOCATION:

Sand slope below Richardson Fire Tower.

TYPES OF DATA COLLECTED:

Primary:

1. Vegetation parameters
2. Soil & meteorological measurement
3. Soil-free water balance

Raw Form:

Field notes and measurements

Frequency:

Variable (daily, monthly, yearly)

Reduced Form:

Text; tables, diagrams

Data Analysis:

Regression analysis, development of a mathemetical model

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

1975-76 and 1976-77 interim reports in revi [illegible] 1977-78 final report in preparation.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 7.1

SYSTEM: LAND

TITLE:

Reclamation for Afforestation by Suitable Native and Introduced Tree and Shrub Species

OBJECTIVE:

Evaluate the suitability of native and introduced trees and shrubs as reclamation materials for disturbed areas within the AOSERP Study Area.

PROPONENT:

Energy and Natural Resources
Alberta Forest Service
Edmonton, Alberta

RESEARCHERS:

Dr. S.K. Takyi, Mr. G. Dunsworth and Mr. J. Sherstabetoff
Alberta Forest Service

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: February 1980

LOCATION:

GCOS Tailings dike (Syncrude Lease No. 17)

TYPES OF DATA COLLECTED:

Primary:
Data on mortality, survival and growth factors for 24 species of trees and shrubs

Raw Form:

Field notes and results of observations

Frequency:

Variable, seasonal

Reduced Form:

Text, graphs, diagrams

Data Analysis:

Statistical (mortality, survival and growth, arithmetic means and deviations)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. C.A. Dermott, Director
Reclamation & Reforestation Branch
Alberta Forest Service, Edmonton

(403) 427-8474

PROJECT STATUS:

Project on-going. 1976-77 interim report in revision. 1975-76 and 1977-78 interim reports in review.

COMMENTS:

This research was initiated in 1974 by the Alberta Forest Service; AOSERP support began in 1975-76 fiscal year.

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1978	VE 7.1.1

SYSTEM: LAND

TITLE:

Control of Small Mammals on Reclamation Areas in the AOSERP Study Area - Literature Review and Problem Analysis

OBJECTIVE:

Define extent and severity of the problem.
Develop small mammal control program.
Review the literature.

PROPONENT:

LGL Limited, Environmental Research Associates, Edmonton

RESEARCHERS:

Mr. Jeffrey E. Green
LGL Limited

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: November 1977

PROJECT COMPLETION DATE: February 1980

LOCATION:

GCOS tailings dike, Syncrude Lease No. 17

TYPES OF DATA COLLECTED:

Primary:

1. Trapping of small mammals (voles, shrews)
2. Notes on vegetation
3. Literature survey

Raw Form:

1 & 2. Field notes
3. Literature review, annotated bibliography

Frequency:

Intermittent

Reduced Form:

Text; tables, photographs

Data Analysis:

Recommendations based on literature survey and field work

Form of Storage:

Text;

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going. 1977-78 interim report in review.

COMMENTS:

Literature review was completed and will be published separately.
Note: This project has the same project number as the project identified on the following page the the projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: VE 7.1.1

SYSTEM: LAND

TITLE:

Continued Monitoring of the Harmful Small Mammal Problem in the Alberta Oil Sands Reclamation and Revegetation Program (See comments section)

OBJECTIVE:

Assess small mammal populations on representative sectors of the GCOS dike and develop an effective method of rodent control

PROPONENT:

Environment Canada, Environmental Management Service, Canadian Wildlife Service
Edmonton

RESEARCHERS:

Dr. A. Radvanyi
Canadian Wildlife Service

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: June 1976

PROJECT COMPLETION DATE: February 1977

LOCATION:

GCOS dike; see interim report VE 7.1.1 for site locations

TYPES OF DATA COLLECTED:

Primary:

Data on small mammal populations by species, age class, territory, home range, and intensity and distribution of damage.

Raw Form:

Field notes, observations, results of trapping and poisoning (5 field sites)

Frequency:

Trapping (10 consequetive days)
Observations variable (daily, monthly)

Reduced Form:

Text, tables, diagrams, graphs

Data Analysis:

Statistical (age class, distribution of damage)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. A. Radvanyi
Canadian Wildlife Service
Edmonton, Alberta
(403) 435-7327

PROJECT STATUS:

Final report in preparation.

COMMENTS:

This project is associated with VE 7.1. Funding continued through GCOS program. This project has the same project number as the project identified on the previous page, but the projects are different in scope and were performed in different fiscal years.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 7.2

SYSTEM: LAND

TITLE:

Controlled Environmental Trials for Species Suitable for Revegetation

OBJECTIVE:

Provide preliminary information about the adaptability of selected ecotypes and landraces to certain environmental conditions and soil types. Provide information necessary to recommend plant communities for revegetation of disturbed areas. Provide information for seed production & handling of native grasses, legumes and shrubs.

PROPONENT:

Vaartnou and Sons Enterprises Limited,
Edmonton

RESEARCHERS:

Dr. Herman Vaartnou
Vaartnou & Sons Enterprises Ltd.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area; for locations, see map in interim report VE 7.2, Woodbend Research Station - Devon

TYPES OF DATA COLLECTED:

Primary:
Greenhouse tests on a variety of native and naturalized plant species on tailings sand, tar sands & northern Alberta Soil types. Growth rate measurements.

Raw Form:

Notes on experiments and observations, photographs

Frequency:

Intermittent

Reduced Form:

Text, graphs, tables, list of species

Data Analysis:

Statistical - growth rates

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

1975-76 and interim reports in revision. 1976-77 interim report complete. 1977-78 final report in review.

COMMENTS:

The projects VE 7.2, VE 7.3 and VE 7.4 were designed to complement each other.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 7.3

SYSTEM: LAND

TITLE:

Field Trials to Test Plant Communities

OBJECTIVE:

Provide preliminary information on the adaptability of selected ecotypes. Provide recommendations on plant communities for revegetation. Provide information for seed production and handling of native grasses, legumes and shrubs.

PROPONENT:

Vaartnou and Sons Enterprises Ltd.
Edmonton, Alberta

RESEARCHERS:

Dr. Herman Vaartnou
Vaartnou and Sons Enterprises Ltd.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area (Mildred Lake Research Facility, Thickwood Hills, GCOS tailings dike)

TYPES OF DATA COLLECTED:

Primary:
Field trials with several species of grasses, legumes, trees and shrubs

Raw Form:

Field notes and observations on establishment, growth rate, photographs of the same

Frequency:

Intermittent, variable for details see interim report for VE 7.3

Reduced Form:

Text; tables, graphs

Data Analysis:

Comparisons of various species in respect to growth rate - tabulations

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

1975-76 interim report in review;
1976-77 interim report complete
1977-78 final report in review.

COMMENTS:

The projects VE 7.2, VE 7.3, VE 7.4 were designed to complement each other.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 7.4

SYSTEM: LAND

TITLE:

Technology of Seed Production and Handling

OBJECTIVE:

Identify native herbaceous and shrubby species of plants, suitable for reclamation. Investigate methods for the establishment of those species on disturbed soils.

PROPONENT:

Vaartnou and Sons Enterprises Ltd.
Edmonton, Alberta

RESEARCHERS:

Dr. Herman Vaartnou
Vaartnou and Sons Enterprises Ltd.
Edmonton

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1975

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area (Mildred Lake Research Facility, GCOS tailings dike, Vegreville)

TYPES OF DATA COLLECTED:

Primary:
1. Collection & identification of propagules. 2. Results of tests for survival & establishment on disturbed soils
3. Field and greenhouse experiments

Raw Form:

Field notes, photographs, experiment logs

Frequency:

Periodic, intermittent observations

Reduced Form:

Text, tables

Data Analysis:

Lists, tabulations, evaluations

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

1975-76 interim report in review;
1976-77 interim report complete;
1977-78 final report in review.

COMMENTS:

Projects VE 7.2, VE 7.3, VE 7.4 were designed to complement each other.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 7.6

SYSTEM: LAND

TITLE:

Evaluation of AOSERP Reclamation
Research Progress and Needs

OBJECTIVE:

N/A

PROPONENT:

R.M. Hardy and Associates Limited
Calgary, Alberta

RESEARCHERS:

Dr. W. Younkin
R.M. Hardy and Associates Limited

LEVEL OF EFFORT TO DATE:

N/A (see comments section)

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

No data collected at present time

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

N/A

Data Analysis:

N/A

Form of Storage:

N/A

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project deferred.

COMMENTS:

This project has been deferred to 1978-79 fiscal year.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: VE 9.1

SYSTEM: LAND

TITLE:

Re-instatement of Biological Activity in Disturbed Soils and Mine Wastes

OBJECTIVE:

Develop the understanding necessary to achieve a self-sustaining microbial population in soils and tailings.

PROPONENT:

Alberta Environment,
Research Secretariat

RESEARCHERS:

Dr. D. Parkinson, Department of Biology
University of Calgary, Calgary

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Field experiments and observations at Bow City, Cardinal River, Forestburg.

TYPES OF DATA COLLECTED:

Primary: 1. Chemical composition of soil 2. Fungal flora 3. Bacterial fauna 4. Decomposition data 5. Nigrogen fixation 6. Plant extablishment and growth 7. Soil microbial populations

Raw Form:

Field notes, experimental notes

Frequency:

Periodic (over several years)

Reduced Form:

Text; tables

Data Analysis:

Tabulations, comparisons, statistical (arithmetic means, standard deviations) rates of reaction

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. A. Hursey, Research Manager
Land System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Project is now funded by Heritage Trust Fund.

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AF 1.1.2	Acute Lethality of Mine Depressurization Water to Trout Perch and Rainbow Trout
AF 1.2.1	The Impact of Saline Waters Upon Freshwater Biota (A Literature Review and Bibliography)
AF 1.5.1	Chemical Characteristics of Industrial Effluents
AF 2.0	An Interim Report on Ecological Studies on the Benthic Invertebrates of Rivers in the Alberta Oil Sands Environmental Research Program Study Area
AF 2.0.1	Invertebrate Resource Studies of the AOSERP Study Area
AF 2.0.2	Primary and Secondary Productivity Studies of Muskeg Drainage in the AOSERP Study Area
AF 2.1.1	A Survey of Baseline Levels of Contaminants in Aquatic Biota of the AOSERP Study Area
AF 2.2.1	Life Cycles of Some Common Aquatic Insects of the Athabasca River, Alberta
AF 2.3.1	Studies on Lake Acidification and Cycling of Heavy Metals in Aquatic Ecosystems
AF 2.5.1	Ecology and Life Cycles of Aquatic Invertebrates in Hartley Creek
AF 2.6.1	Assimilative Capacity of the Athabasca River due to Microbial Degredation of Organic Compounds
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I. AQUATIC FAUNA

Fiscal Year:	Updated to:	Project No.:
1975-76	31 March 1978	AF 1.1.1

SYSTEM: WATER

TITLE:

Aquatic Environmental Toxicology Research - Inventory Phase

OBJECTIVE:

Study an existing operation in the Oil Sands Area in order to accurately characterize the toxicity to fish and aquatic invertebrates of the various effluents from the extraction and refining process.

PROPONENT:

Alberta Environment
Pollution Control Division, Edmonton

RESEARCHERS:

Mr. W. Lake
Alberta Environment

LEVEL OF EFFORT TO DATE:

N/A. See project status.

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

Primary:
N/A. See project status.

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project Inactive.

COMMENTS:

Continued in 1976-77 as AF 1.1.2.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: AF 1.1.2

SYSTEM: WATER

TITLE:

Acute Lethality of Mine Depressurization Water to Trout Perch and Rainbow Trout

OBJECTIVE:

Provide acute toxicity information regarding liquid effluents from the Alberta Oil Sands of northeastern Alberta.

PROPONENT:

Alberta Environment
Pollution Control Division, Edmonton

RESEARCHERS:

Mr. W. Lake
Alberta Environment

LEVEL OF EFFORT TO DATE:

$44,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: May 1977

LOCATION:

Fort McMurray

TYPES OF DATA COLLECTED:

Primary:
1. Fish mean survival times
2. 96-hour lethal concentration

Secondary:
3. Length & weight of fish
4. Chemical analysis of water samples

Raw Form:

1, 2, 3 & 4. Lab notes

Frequency:

N/A

Reduced Form:

Tables

Data Analysis:

Statistical (arithmetic means, standard deviations, etc.)

Form of Storage:

Tables, data file, text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. Bill Lake, Pollution Control Division
Alberta Environment
Edmonton, Alberta
(403) 427-7889

PROJECT STATUS:

Final report in revision. Project discontinued in 1977-78.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 1.2.1

SYSTEM: WATER

TITLE:

The Impact of Saline Waters Upon Freshwater Biota (A Literature Review and Bibliography)

OBJECTIVE:

Review existing literature with respect to the impact of saline waters upon temperate freshwater biota.

PROPONENT:

Aquatic Environments Ltd., Calgary

RESEARCHERS:

Mr.K. Machniak
Aquatic Environments Ltd., Calgary

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: June 1976

LOCATION:

N/A

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

AOSERP Report #8; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: AF 1.5.1

SYSTEM: WATER

TITLE:

Chemical Characteristics of Industrial Effluents

OBJECTIVE:

Provide routine standardized chemical support to AOSERP research projects.

PROPONENT:

Chemex Labs (Alberta) Ltd.
Edmonton, Alberta

RESEARCHERS:

Not available

LEVEL OF EFFORT TO DATE:

$45,000

PROJECT STARTING DATE: July 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Water quality parameters

Raw Form:

Chemical analysis reports

Frequency:

N/A

Reduced Form:

Summary sheets

Data Analysis:

N/A (see comments section below)

Form of Storage:

Computerized NAQUADAT system, summaries and tables, AOSERP research reports

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project complete; no report.

COMMENTS:

This project was chemical analyses only. AF 1.5.1 is affiliated with HY 3.1. AF 1.5.1 is not included in annual report.

Fiscal Year:	*Updated to:*	*Project No.:*
1976-77	31 March 1978	AF 2.0

SYSTEM: WATER

TITLE:

An Interim Report on Ecological Studies on the Benthic Invertebrates of Rivers in the Alberta Oil Sands Environmental Research Program Study Area

OBJECTIVE:

Study the benthic ecology of aquatic macroinvertebrates of the Muskeg and Steepbank rivers. Determine the impact of instantaneous experimental spill of tailings sludge on the benthic fauna of a brown-water stream tributary to the Athabasca River. Examine the effects of synthetic crude oil on colonization of rocky substrates by benthic organisms.

PROPONENT:

Environment Canada
Fisheries and Marine Service, Edmonton
Freshwater Institute, Winnipeg

RESEARCHERS:

Dr. R. Wallace & Dr. D. Barton
Environment Canada

LEVEL OF EFFORT TO DATE:

$50,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: September 1977

LOCATION:

Muskeg and Steepbank Rivers (AOSERP Study Area)

TYPES OF DATA COLLECTED: Primary:

1. Impact of experimental spill of tailings sludge & oils on benthic invertebrates
2. Life cycles of benthic invertebrates
3. Composition of sludge

Raw Form:

1 & 2. Field notes & photographs
3. Lab notes
4. Specimens

Frequency:

1. Various
2. Weekly
3. Once

Reduced Form:

Summary tables, bar charts, graphs

Data Analysis:

Compilation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Wallace
Environment Canada
Edmonton, Alberta

(403) 435-1532

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 2.0.1

SYSTEM: WATER

TITLE:

Invertebrate Resource Studies of the AOSERP Study Area

OBJECTIVE:

Gather baseline information on invertebrate fauna. Assess GCOS impact upon Athabasca river organisms. Describe response of benthic communities to oil sands development. Relate population dynamics of benthic fauna to fish fauna.

PROPONENT:

Environment Canada
Fisheries and Marine Service, Edmonton
Freshwater Institute, Winnipeg

RESEARCHERS:

Dr. R.R. Wallace & Dr. D. Barton
Environment Canada

LEVEL OF EFFORT TO DATE:

$61,000

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Athabasca R., Muskeg R., Steepbank R., Beaver R., Poplar Cr., Syncrude West interceptor ditch (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Taxonomic & life cycles
2. Rearing of aquatic insects
3. Oil spill simulation
4. Drift & colonization of invertebrates

Raw Form:

Field notes and photographs, Specimens

Frequency:

1. Weekly
2. Monthly

3 & 4. Various

Reduced Form:

Summary tables and graphs

Data Analysis:

Compilation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Wallace
Environment Canada
Edmonton, Alberta

(403) 435-1532

PROJECT STATUS:

Final report in review.

COMMENTS:

AF 2.0.1 in conjunction with AF 2.0.2.
AF 2.0.1 is a continuation of AF 2.0.

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1987	AF 2.0.2

SYSTEM: WATER

TITLE:

Primary and Secondary Productivity Studies of Muskeg Drainage in the AOSERP Study Area

OBJECTIVE:

Baseline data of Muskeg River, input of nutrients via groundwater, effects of siltation and stream substrate alterations and effects of future development on stream communities.

PROPONENT:

Environment Canada
Fisheries and Marine Service, Edmonton
Freshwater Institute, Winnipeg

RESEARCHERS:

Dr. R.R. Wallace & Dr. M. Lack
Environment Canada

LEVEL OF EFFORT TO DATE:

$44,000

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Muskeg River (10 km from mouth), Steepbank River (1 km from mouth) and Hartly Creek (3.8 km from confluence with Muskeg R.)

TYPES OF DATA COLLECTED:

Primary:
1. Stone disc substrates 2. Water samples 3. Algae samples 4. Total benthic respiration studies 5. Colonization of tar 6. Contribution nutrients by groundwater.

Raw Form:

Field notes and photography
SEM photomicrographs

Frequency:

Various

Reduced Form:

Summary tables, graphs, charts

Data Analysis:

Compilation, fluctuation analyses

Form of Storage:

Data sheets, text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Wallace
Environment Canada
Edmonton, Alberta
(403) 425-1532

PROJECT STATUS:

Final report in review.

COMMENTS:

AF 2.0.2 in conjunction with AF 2.0.1.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 2.1.1

SYSTEM: WATER

TITLE:

A Survey of Baseline Levels of Contaminants in Aquatic Biota of the AOSERP Study Area

OBJECTIVE:

To determine background levels of contamination. Define relationship between level of contaminant and size of fish. Identify natural sources of contamination. Provide baseline biological information and number of potential sites for further experimental work.

PROPONENT:

Environment Canada, Freshwater Institute

Renewable Resources Ltd., Edmonton

RESEARCHERS:

Mr. A. Lutz & Mr. M. Hendzel
Environment Canada

LEVEL OF EFFORT TO DATE:

Not Available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: December 1976

LOCATION:

AOSERP Study Area (see report for detailed site locations)

TYPES OF DATA COLLECTED: Primary:

1. Heavy metals levels in fish, waters, sediments, invertebrates & plankton
2. Organochlorine pesticides & PCB's in fish.
3. Length and weight of fish.

Raw Form:

1 & 2. Lab notes

Frequency:

Once

Reduced Form:

Summary tables

Data Analysis:

Compilation, statistical (arithmetic means, standard deviations and significance)

Form of Storage:

AOSERP Report #17; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. M. Hendzel & Mr. A. Lutz
Freshwater Institute
Winnipeg, Manitoba
(204) 269-7379

PROJECT STATUS:

Project complete.

COMMENTS:

Samples were analyzed by the Freshwater Institute, Winnipeg.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 2.2.1

SYSTEM: WATER

TITLE:

Life Cycles of Some Common Aquatic Insects of the Athabasca River, Alberta

OBJECTIVE:

Provide basic data on the occurrence and life cycles of aquatic insects inhabiting the Athabasca River near Fort McMurray and the effects of methoxychlor as a blackfly control measure.

PROPONENT:

Environment Canada
Freshwater Institute, Winnipeg

RESEARCHERS:

Mr. J. Flannagan
Environment Canada

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: December 1976

LOCATION:

Athabasca River in the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Species identification and life cycles of aquatic insects from artificial substrate samples

Raw Form:

Field notes

Frequency:

Once

Reduced Form:

Summary tables, graphs, bar charts

Data Analysis:

Compilation and categorization

Form of Storage:

AOSERP Report #11; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. J. Flannagan
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year:	*Updated to:*	*Project No.:*
1977-78	31 March 1978	AF 2.3.1

SYSTEM: WATER

TITLE:

Studies on Lake Acidification and Cycling of Heavy Metals in Aquatic Ecosystems

OBJECTIVE:

Artificial acidification of a small lake to study effects on organisms, heavy metal mobilization and lake chemistry.

PROPONENT:

Environment Canada
Freshwater Institute, Winnipeg

RESEARCHERS:

Dr. D.W. Schindler, Mr. D. DeClerq and Mr. A. Chalanchuk
Freshwater Institute, Winnipeg

LEVEL OF EFFORT TO DATE:

$60,000

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1980

LOCATION:

Experimental Lakes Area near Kenora, Ontario

TYPES OF DATA COLLECTED:

Primary:
1. Chemical water samples
2. Physical measurements
3. Phytoplankton samples
4. Zooplankton samples
5. Zoobenthos samples
6. Fish samples

Raw Form:

1 & 2. Lab notes
3, 4, 5 & 6. Field notes

Frequency:

1 & 2. Monthly
3. Bi-weekly
4. Monthly 5. Weekly
6. 5 times per week

Reduced Form:

Summary tables and graphs

Data Analysis:

Compilation, categorization, statistical (arithmetic means, standard deviation, significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. D.W. Schindler
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 2.5.1

SYSTEM: WATER

TITLE:

Ecology and Life Cycles of Aquatic Invertebrates in Hartley Creek

OBJECTIVE:

Identify and analyze macrobenthic invertebrates of Hartley Creek and their life histories and micro-distribution in relation to selected environmental parameters.

PROPONENT:

University of Calgary, Biology Department
Calgary, Alberta

RESEARCHERS:

Dr. R. Harland-Rowe, Dr. R. Davies,
Mr. R. Crowther and Mr. M. McElhone
University of Calgary

LEVEL OF EFFORT TO DATE:

$47,000

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Hartley Creek in the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Samples of macrobenthic invertebrates and substrate

Secondary:

2. Physical & Chemical parameters of water.

Raw Form:

1. Field notes
2. Lab notes, photographs
3. Specimens

Frequency:

1 & 2. Monthly May-October

Reduced Form:

Summary tables and graphs

Data Analysis:

Sorting, identification and enumeration to numerical form

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Related work on invertebrates in AF 2.0.1 and 2.0.2.

SYSTEM: WATER

TITLE:

Assimilative Capacity of the Athabasca River due to Microbial Degredation of Organic Compounds

OBJECTIVE:

Develop a biological model of the Athabasca River system. Determine the capacity of microbes to remove organic compounds. Predict effects of oil sands development.

PROPONENT:

Chemical and Geological Laboratories
Edmonton, Alberta

RESEARCHERS:

Mr. P. Nix, Mr. R.B. Murray and
Dr. J.W. Costerton (Microbios Lab.)
Chemical and Geological Laboratories

LEVEL OF EFFORT TO DATE:

$58,000

PROJECT STARTING DATE: October 1977

PROJECT COMPLETION DATE: October 1978

LOCATION:

Athbasca River

TYPES OF DATA COLLECTED:

Primary:
1. Literature review
2. Chemical analysis of sediment
3. Phytoplankton counts

Raw Form:

1. N/A
2 & 3. Lab notes

Frequency:

Not available

Reduced Form:

Summary tables

Data Analysis:

Modelling

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Related work HY 3.1.2.
Previous work HY 3.1.1, HY 3.1, HY 2.6.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 3.1.1

SYSTEM: WATER

TITLE:

A Synopsis of the Physical and Biological Limnology and Fisheries Programs Within the Alberta Oil Sands Area

OBJECTIVE:

Review existing data on aquatic resources of the AOSERP study area and indicate types and level of detail of information on the physical/chemical limnology of lakes and rivers and on the biology of fish inhabiting the lakes and rivers in the area.

PROPONENT:

Renewable Resources Consulting Services, Edmonton

RESEARCHERS:

Mr. T.D. Jantzie
Renewable Resources Consulting Services

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: December 1976

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

AOSERP Report #7; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

AF 3.1.1 in conjunction with AF 3.1.2.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 3.2.1

SYSTEM: WATER

TITLE:

Location and Design of Aquatic Toxic Lab

OBJECTIVE:

Not available (see project status and comments sections)

PROPONENT:

N/A

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A (see project status)

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive.

COMMENTS:

AF 3.2.1 (1975-76) not included in annual report. This project is different than AF 3.2.1 (1976-1977) (see comment section of next page).

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 3.1.2

SYSTEM: WATER

TITLE:

A Synopsis of Information Relating to Aquatic Ecosystems Toxicology Within the Alberta Oil Sands Area

OBJECTIVE:

Provide researchers with an understanding of the available information relating to aquatic ecosystem toxicology for the AOSERP Study Area prior to designing and implementing a program of toxicology research.

PROPONENT:

Renewable Resources Consulting Services
Edmonton, Alberta

RESEARCHERS:

Mr. R.D. Jantzie
Renewable Resources Consulting Services

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: August 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

AOSERP Report AF 3.1.2

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

AF 3.1.2 was performed in conjunction with AF 3.1.1. AF 3.1.2 (1975-76) is not in annual report.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: AF 3.2.1

SYSTEM: WATER

TITLE:

Aquatic Environmental Toxicity Research Studies

OBJECTIVE:

Provide a sequence of saline groundwater and vanadium toxicity testing applicable to use for on site studies and to provide a basis for future evaluations of species for experimentation.

PROPONENT:

Environment Canada, Freshwater Institute
Winnipeg, Manitoba

RESEARCHERS:

Dr. J. Klavenkamp, Dr. S. Lawrence and Dr. M. Giles
Environment Canada

LEVEL OF EFFORT TO DATE:

$60,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

Syncrude Lease (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Saline groundwater, vanadium and copper bioassays

Secondary:
2. Chemical analysis of saline groundwater

Raw Form:

1 & 2. Lab notes

Frequency:

1. Various
2. Three times

Reduced Form:

Tables and graphs

Data Analysis:

Statistical (standard deviations, significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. M. Giles
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

Final report in review.

COMMENTS:

Same project number as AF 3.2.1 (1975-1976), however studies were different and the fiscal year in which the projects took place is different.

Fiscal Year: 1975-76	*Updated to:* 31 March 1978	*Project No.:* AF 3.3.1

SYSTEM: WATER

TITLE:

Chemical Characterization of Industrial Water

OBJECTIVE:

Not available (see project status and comments sections).

PROPONENT:

N/A

RESEARCHERS:

N/A

LEVEL OF EFFORT TO DATE:

N/A

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A (see project status)

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive.

COMMENTS:

AF 3.3.1 (1975-76) project not in annual report.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 3.5.1

SYSTEM: WATER

TITLE:

Acute and Chronic Toxicity of Vanadium to Fish

OBJECTIVE:

Determine the acute lethality of vanadium to rainbow trout at twelve combinations of water hardness and pH and cronic toxicity of vanadium to flag fish in a one-generation exposure.

PROPONENT:

University of Guelph
Department of Zoology
Ontario

RESEARCHERS:

Dr. J.B. Sprague, Mr. D. Stendahl and
Mr. D.A. Holdway
University of Guelph

LEVEL OF EFFORT TO DATE:

$23,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Lethal concentrations
2. Concentrations causing sublethal effects

Raw Form:

Lab notes

Frequency:

Variable

Reduced Form:

Equation for predicting lethality at any pH-hardness combination

Data Analysis:

Statistical (standard deviation, significance), compilation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 3.6.1

SYSTEM: WATER

TITLE:

Multiple Toxicity of Nickel, Vanadium and Phenol to Fish

OBJECTIVE:

Assess the lethal and sublethal hazard to aquatic populations of mixtures of three pollutants, nickel, vanadium and phenol commonly generated by Alberta Tar Sands Operations.

PROPONENT:

Concordia University
Montreal

RESEARCHERS:

Dr. P. Anderson and Mr. P. Spear
Concordia University

LEVEL OF EFFORT TO DATE:

$23,000

PROJECT STARTING DATE: July 1976

PROJECT COMPLETION DATE: December 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Fish bioassay

Raw Form:

Lab notes

Frequency:

Various

Reduced Form:

Summary graphs and tables

Data Analysis:

Statistical (threshold limits)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report overdue.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 4.1.1

SYSTEM: WATER

TITLE:

Walleye and Goldeye Fisheries Investigations in the Peace-Athabasca Delta - 1975

OBJECTIVE:

Study biological characteristics of walleye and goldeye in the Peace-Athabasca Delta. Survey the weir at Little Rapids, Riviere des Rochers. Assess the feasibility of marking several species with acrylic dye.

PROPONENT:

LGL Environmental Research Associates Ltd.
Edmonton

RESEARCHERS:

Mr. J. Kristensen, Mr. B.S. Ott and Mr. A.D. Sekerak
LGL Environmental Research Associates Ltd.

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

Richardson Lake, Lake Athabasca, Lake Claire and Mamawi Lake (see report for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:
1. Numbers of walleye & goldeye of all ages captured by gill netting & trawling
Secondary: 2. Information concerning the Little Rapids Weir 3. Marking of several fish species.

Raw Form:

Field notes (see AOSERP research manager's file)

Frequency:

Daily from 18 July-9 September and 26 September-22 October 1975

Reduced Form:

Summary tables and graphs

Data Analysis:

1. Categorization, species composition
2 & 3. Evaluation

Form of Storage:

AOSERP Report #2; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 4.2.1

SYSTEM: WATER

TITLE:

Development of Apparatus and Methods to Monitor Migration of Fish

OBJECTIVE:

Research and develop radio tags that could be implanted in fish. Perform detection surveys for a period of 18 months with an aircraft flying over at 85 mph.

PROPONENT:

Alberta Recreation, Parks and Wildlife
Fish and Wildlife Division, Edmonton

RESEARCHERS:

Dr. B. Bidgood, Mr. H. Baldwin
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:

$42,000

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: March 1976

LOCATION:

Laboratory, Edmonton

TYPES OF DATA COLLECTED:

Primary:

1. Research, develop and test batteries, electronic circuits & electronic receiv.

Secondary:

2. Technique of anaesthetizing fish, surgically implanting radio tags & suturing the wound.

Raw Form:

Lab notes

Frequency:

Live specimens obtained from the field and held in laboratory eight times.

Reduced Form:

Text

Data Analysis:

Evaluation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. H.A. Baldwin & Dr. B.F. Bidgood
Alberta Recreation, Parks and Wildlife
Edmonton, Alberta

(403) 436-8240

PROJECT STATUS:

Project complete; final report incorporated in AF 4.2.2 1976-77 report.

COMMENTS:

See also AF 4.2.2.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: AF 4.2.2

SYSTEM: WATER

TITLE:

Field Testing of Surgically Implanted Radio Tags in Fish

OBJECTIVE:

To field test radio tags surgically implanted in species of fish in an Alberta lake and river.

PROPONENT:

Alberta Recreation, Parks and Wildlife
Fish and Wildlife Division, Edmonton

RESEARCHERS:

Dr. B. Bidgood & Mr. H.A. Baldwin
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:

$19,000

PROJECT STARTING DATE: January 1977

PROJECT COMPLETION DATE: March 1977

LOCATION:

Buck Lake and North Saskatchewan River

TYPES OF DATA COLLECTED:

Primary:
Location of radio tagged fish

Raw Form:

Field notes

Frequency:

Buck Lake - 3 occasions, North Saskatchewan River - 3 occasions

Reduced Form:

Text

Data Analysis:

Location plotting

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. B.F. Bidgood
Alberta Recreation, Parks and Wildlife
Edmonton, Alberta
(403) 436-8240

PROJECT STATUS:

Final report is being revised and will be incorporated with AF 4.2.1.

COMMENTS:

Future receiver design, data processing and field operating and tracking procedures will be funded by Alberta Recreation, Parks and Wildlife, Fish and Wildlife Division.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: AF 4.3.1

SYSTEM: WATER

TITLE:

Preliminary Studies on Fall Spawning

OBJECTIVE:

Locate water courses used by fall spawning species and characterize the limnology of the spawning site.

PROPONENT:

Alberta Recreation, Parks and Wildlife
Fish and Wildlife Division, Edmonton

RESEARCHERS:

Dr. B. Bidgood
Alberta Recreation, Parks and Wildlife

LEVEL OF EFFORT TO DATE:
N/A. See Project Status

PROJECT STARTING DATE: N/A

PROJECT COMPLETION DATE: N/A

LOCATION:

N/A

TYPES OF DATA COLLECTED:

Primary:
N/A. See project status section.

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

N/A

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

Project inactive.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 4.3.2

SYSTEM: WATER

TITLE:

Biological Sampling and Tagging of the Major Fish Species of the Athabasca River

OBJECTIVE:

Obtain data on the seasonal distribution, relative abundance, migration routes and timing, spawning streams and baseline information concerning the general biology of fish in the AOSERP Study Area.

PROPONENT:

Environment Canada, Fisheries & Marine Service, Winnipeg
Alberta Recreation, Parks and Wildlife, Fish and Wildlife Division

RESEARCHERS:

Mr. D.K. Berry & Mr. W. Bond, Environment Canada

LEVEL OF EFFORT TO DATE:

$100,000

PROJECT STARTING DATE: May 1976

PROJECT COMPLETION DATE: March 1979

LOCATION:

Athabasca River within the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary: 1. Catch data from gill nettings,
2. Large mesh and small mesh seine hauls.
3. Relative abundance & general biology for life history of 25 species.
Secondary: 4. Fish movements & timing of some migrations

Raw Form:

Field notes (see AOSERP Research Manager's File)

Frequency:

Bi-monthly, May-October 1976 & April-November 1977

Reduced Form:

Tables and graphs

Data Analysis:

1-3 species composition, categorization

Form of Storage:

Computer print-outs, text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. W. Bond
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

1976-77 and 1977-78 interim reports in review.

COMMENTS:

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 4.5.2

SYSTEM: WATER

TITLE:

Intensive Study of the Fish Fauna and Aquatic Habitat of the Steepbank River Watershed

OBJECTIVE:

Apply tags to migrant fish and monitor migration of the various species. Assess abundance, distribution and general biology of resident fish species of the Steepbank River system. Describe the aquatic habitat of the Steepbank River watershed.

PROPONENT:

Environment Canada, Fisheries and Marine Service, Winnipeg

RESEARCHERS:

Mr. W. Bond and Mr. K. Machniak
Environment Canada

LEVEL OF EFFORT TO DATE:

$25,000

PROJECT STARTING DATE: May 1977

PROJECT COMPLETION DATE: June 1978

LOCATION:

Steepbank River Bain

TYPES OF DATA COLLECTED:

Primary:
1. Numbers of fish
2. Tagging data

Raw Form:

1 & 2. Field notes (see AOSERP Research Manager's File)

Frequency:

1. 5-7 times daily, April 25 - May 29 & 1-2 times daily Sept. 12 - Oct 15
2. Various

Reduced Form:

Tables and graphs

Data Analysis:

Species composition; categorization

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. W. Bond
Freshwater Institute
Winnipeg, Manitoba
(204) 269-7379

PROJECT STATUS:

Final report in review.

COMMENTS:

Related to AF 4.5.1.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 4.4.1

SYSTEM: WATER

TITLE:

A Preliminary Study of Aquatic Habitat Mapping

OBJECTIVE:

Describe data gathering methods and map preparation procedures recommended for aquatic habitat mapping of the AOSERP Study Area. Describe remote sensing imagery and discuss its uses and limitations.

PROPONENT:

Shultz International Limited,
Vancouver, B.C.

RESEARCHERS:

Mr. A. Brown, Mr. J.W. Park, Mr. M.J. Kent and Mr. R.D. Roberts
Shultz International Limited

LEVEL OF EFFORT TO DATE:

$11,000

PROJECT STARTING DATE: December 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1978	AF 4.5.1

SYSTEM: WATER

TITLE:

Intensive Study of the Fish Fauna of the Muskeg River Watershed of Northeastern Alberta

OBJECTIVE:

Describe baseline states of the fish resources of the Muskeg River watershed and provide a quantitative estimate of the significance of the Muskeg River to the fisheries of the Athabasca River system.

PROPONENT:

Environment Canada, Fisheries and Marine Service, Winnipeg

RESEARCHERS:

Mr. W. Bond and Mr. K. Machniak
Environment Canada

LEVEL OF EFFORT TO DATE:

$27,000

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

Muskeg River Basin (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Numbers of fish
2. Tagging data

Secondary:
3. Water Levels
4. Water Temperature

Raw Form:

Field notes (see AOSERP Research Manager's File)

Frequency:

1. April-June - 5-7 times daily;
   June-July - 1-2 times daily.

2, 3 & 4. Various

Reduced Form:

Tables and graphs

Data Analysis:

Species composition, statistical (arithmetic means, significance levels)

Form of Storage:

AOSERP Report #26 (1976-77); Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. W. Bond
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

1976-77 interim report complete, final report in review.

COMMENTS:

Related to AF 4.5.2.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: AF 4.6.1

SYSTEM: WATER

TITLE:

Recreational Use of Fish and Wildlife

OBJECTIVE:

Determine the socio-economic value of the use of fish and wildlife resources in Alberta with particular reference to the Athabasca Oil Sands Area.

PROPONENT:

Alberta Recreation, Parks and Wildlife

RESEARCHERS:

Not available

LEVEL OF EFFORT TO DATE:

$10,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

Alberta

TYPES OF DATA COLLECTED:

Primary:
Recreational use of fish and wildlife

Raw Form:

Questionnaires

Frequency:

Periodic

Reduced Form:

Tables, maps, text

Data Analysis:

Statistical

Form of Storage:

AF 4.6.1 incorporated into TF 6.1 final report

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project complete.

COMMENTS:

AF 4.6.1 incorporated in TF 6.1; AF 4.6.1 not in annual report.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 4.8.1

SYSTEM: WATER

TITLE:

Fisheries Investigation of the Athabasca and Clearwater Rivers Upstream from Fort McMurray

OBJECTIVE:

Determine species composition relative abundance and biology of major fish species in the Athabasca and Clearwater rivers. Identify migration patterns and delineate actual and potential spawning areas for lake whitefish.

PROPONENT:

Aquatic Environment Limited
Calgary, Alberta

RESEARCHERS:

Mr. M.L. Jones, Dr. P.J. McCart and
Mr. G.J. Mann
Aquatic Environment Limited

LEVEL OF EFFORT TO DATE:

$58,000

PROJECT STARTING DATE: September 1977

PROJECT COMPLETION DATE: March 1978

LOCATION:

Athabasca and Clearwater rivers within the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. Tagging and catching
Secondary:
2. Water temperatures
3. Dissolved oxygen levels
4. Egg surveys in suspected spawning areas.

Raw Form:

Field notes (see AOSERP research manager's file)

Frequency:

1. Weekly
2 & 3. Daily
4. Once

Reduced Form:

Summary sheets, tables, graphs

Data Analysis:

Categorization, species composition

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Related to AF 4.3.2.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: AF 4.9.2

SYSTEM: WATER

TITLE:

Review of Stream Diversion and Stream Restoration Techniques and Associated Effects of Aquatic Biota

OBJECTIVE:

Review published literature on the effect of permanent and temporary stream diversion and successful stream restoration techniques on aquatic biota and to prepare an annotated bibliography on the subject having particular reference to the AOSERP Study Area.

PROPONENT:

Envirocon Limited
Calgary, Alberta

RESEARCHERS:

Mr. C. Sikstrom & Mr. J.A. Martin
Envirocon Limited

LEVEL OF EFFORT TO DATE:

$15,000

PROJECT STARTING DATE: January 1978

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Report and bibliography

Data Analysis:

N/A

Form of Storage:

Text and bibliography

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year:
1977-78

Updated to:
31 March 1978

Project No.:
AF 4.9.1

SYSTEM: WATER

TITLE:

The Effects of Siltation of Aquatic Biota

OBJECTIVE:

Review published literature on the effects of scour and deposition of silt of aquatic biota and produce an annotated bibliography on the subject having reference for the AOSERP Study Area. Define relevant information gaps and propose research projects that will serve to overcome these deficiencies.

PROPONENT:

Renewable Resources Consulting Services Ltd., Edmonton

RESEARCHERS:

Mr. W.H. Griffiths & Mr. B.D. Walton
Renewable Resources Consulting Services Ltd.

LEVEL OF EFFORT TO DATE:

$8,700

PROJECT STARTING DATE: January 1978

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Literature Review

Raw Form:

N/A

Frequency:

N/A

Reduced Form:

Bibliography and text

Data Analysis:

Application to study area.

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Index: Water (cont'd)

II. Hydrogeology (HG)

HG 1.0	Regional Hydrogeology of the Athabasca Oil Sands
HG 1.1	Hydrogeological Investigation of the Muskeg River Basin

II. HYDROGEOLOGY - HG

Fiscal Year: 1977-78
Updated to: 31 March 1978
Project No.: HG 1.0

SYSTEM: WATER

TITLE:

Regional Hydrogeology of the Athabasca Oil Sands

OBJECTIVE:

Develop a hydrogeological response model for the Athabasca Oil Sands Area.

PROPONENT:

Alberta Energy and Natural Resources
Alberta Research Council, Edmonton

RESEARCHERS:

Dr. D. Hackbarth
Alberta Research Council

LEVEL OF EFFORT TO DATE:

Not available (see comments)

PROJECT STARTING DATE: Not available (see comments)

PROJECT COMPLETION DATE: Not available (see comments)

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Observation well water levels
2. Water Quality

Raw Form:

1. Field notes
2. Lab notes

Frequency:

1. Monthly
2. Annually

Reduced Form:

1. Water level hydrographs
2. Summary tables

Data Analysis:

Model verification

Form of Storage:

Loose leaf data reports issued by ARC yearly; Alberta Environment Library

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. D. Hackbarth
Alberta Research Council
Edmonton, Alberta
(403) 432-8192

PROJECT STATUS:

Project on-going.

COMMENTS:

HG 1.0 was not an AOSERP project. AOSERP support service facilities and technical advice were utilized.

Fiscal Year:	*Updated to:*	*Project No.:*
1977-78	31 March 1978	HG 1.1

SYSTEM: WATER

TITLE:

Hydrogeological Investigation of the Muskeg River Basin

OBJECTIVE:

Collect and interpret hydrogeological data for Muskeg River Basin. Assess hydrologic role of the Muskeg River. Evaluate groundwater/surface water interactions.

PROPONENT:

University of Alberta
Department of Geology, Edmonton

RESEARCHERS:

Dr. F. Schwartz
University of Alberta

LEVEL OF EFFORT TO DATE:

Not available

PROJECT STARTING DATE: March 1977

PROJECT COMPLETION DATE: March 1979

LOCATION:

Muskeg River Basin, Hartley Creek sub-basin (AOSERP Study Area)

TYPES OF DATA COLLECTED:

Primary:
1. Groundwater analysis
2. Muskeg water analysis

Raw Form:

1 & 2. Lab notes (see AOSERP research Manager's file)

Frequency:

1. Seasonnally, twice

Reduced Form:

Summary tables, graphs, charts

Data Analysis:

Interpretive analysis, modelling verification

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Summaries of surface water data and the chemical analyses of precipitation in the AOSERP Study Area were provided by other research programs within AOSERP such as HY 2.5 and ME 1.4.

Index: Water (cont'd)

III. Hydrology (HY)

HY 1.1	Alberta Oil Sands Region Stream Gauging Data
HY 1.2	Additional Stream Gauging
HY 1.3	Suspended Sediment Data Collection at Some Hydrometric Stations
HY 1.4.3	Mixing Studies in the Athabasca River and Delta-Winter Conditions in the River
HY 2.1	Surface Water Quality Survey
HY 2.2	Lake Acidification Potential in the AOSERP Study Area
HY 2.3	Interaction of Humic Substances with Metallic Elements
HY 2.4	Low Flow Measurements
HY 2.4	Pathways of Dispersal of Heavy Metals in the Athabasca River
HY 2.5	Intensive Water Quality Study of the Muskeg River Basin
HY 2.6	Biochemical Ecology of the Athabasca River Related to Industrial Use
HY 2.8.1	Interim Report on the Regional Water Quality of the Alberta Oil Sands Environmental Research Program Study Area
HY 3.1	The Evaluation of Wastewaters from an Oil Sands Extraction Plant
HY 3.1	Chemical Analysis of Effluents and Water
HY 3.1.1	Characterization of Organic Constituents in Waters and Wastewaters of the Athabasca Oil Sands Mining Area
HY 3.1.2	Water Quality Investigation into the Form of Organic Compounds in the Alberta Oil Sands Environmental Research Program (AOSERP) Study Area

III. HYDROLOGY - HY

Fiscal Year: 1977-78	*Updated to:* 31 March 1978	*Project No.:* HY 1.1

SYSTEM: WATER

TITLE:

Alberta Oil Sands Region Stream Gauging Data

OBJECTIVE:

Compile all hydrometric data collected in the AOSERP Study Area

PROPONENT:

Environment Canada
Water Survey of Canada, Calgary

RESEARCHERS:

Mr. M. Spitzer & Mr. K. Loeppky
Environment Canada

LEVEL OF EFFORT TO DATE:

$520,000

PROJECT STARTING DATE: March 1975

PROJECT COMPLETION DATE: March 1980

LOCATION:

AOSERP Study Area (see report for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:
1. Water levels- stream flow
2. Discharge measurements

Raw Form:

Measurement notes

Frequency:

Continuous

Reduced Form:

Tables and graphs, data tapes

Data Analysis:

Water levels converted to discharge (cfs)

Form of Storage:

Annual Water Survey of Canada publication 1976-77; AOSERP Report #18; Alberta Environment Library; Water Survey of Canada

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. M. Spitzer
Water Survey of Canada
Calgary, Alberta

(403) 231-5301

PROJECT STATUS:

Project on-going; 1976-77 interim report #18 is available; 1977-78 interim report in review.

COMMENTS:

Related work was being carried out on HY 1.2.

Fiscal Year: 1976-77	*Updated to:* 31 March 1978	*Project No.:* HY 1.2

SYSTEM: WATER

TITLE:

Additional Stream Gauging

OBJECTIVE:

Provide adequate information on streamflow in the AOSERP Study Area
Add more stream gauging stations to the network.

PROPONENT:

Environment Canada

Water Survey of Canada, Calgary

RESEARCHERS:

Mr. M. Spitzer & Mr. K. Loeppky
Environment Canada

LEVEL OF EFFORT TO DATE:

$21,000

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: November 1976

LOCATION:

AOSERP Study Area (see publications for detailed site locations)

TYPES OF DATA COLLECTED:

Primary:

Stream flow and discharge measurements

Raw Form:

Strip chart

Frequency:

Continuous

Reduced Form:

Summary tables and graphs, AOSERP report #18

Data Analysis:

Water levels converted to discharge (cfs)

Form of Storage:

Annual Water Survey of Canada publications; Alberta Environment Library; Water Survey of Canada

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. M. Spitzer
Water Survey of Canada
Calgary, Alberta

(403) 231-5301

PROJECT STATUS:

Project complete.

COMMENTS:

See also HY 1.1.

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HY 2.1

SYSTEM: WATER

TITLE:

Surface Water Quality Survey

OBJECTIVE:

Obtain baseline data on surface water quality within the AOSERP Study Area. Administrative project for HY 2.5 and HY 2.8.1.

PROPONENT:

Alberta Environment
Water Pollution Control Branch

RESEARCHERS:

Mr. A. Masuda, Dr. R. Seidner
Alberta Environment

LEVEL OF EFFORT TO DATE:

N/A (see project status)

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: April 1978

LOCATION:

N/A

TYPES OF DATA COLLECTED:

N/A (see project status)

Raw Form: N/A

Frequency: N/A

Reduced Form: N/A

Data Analysis: N/A

Form of Storage: N/A

DATA INFORMATION CONTACT:

Dr. R. T. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

N/A

PROJECT STATUS:

This project was the administration of HY 2.5 and HY 2.8.1.

COMMENTS:

See also HY 2.5 and HY 2.8.1.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HY 1.3

SYSTEM: WATER

TITLE:

Suspended Sediment Data Collection of Some Hydrometric Stations

OBJECTIVE:

Provide suspended sediment concentrations in streams in the AOSERP Study Area.

PROPONENT:

Environment Canada
Water Survey of Canada
Calgary, Alberta

RESEARCHERS:

Mr. M.O. Spitzer
Environment Canada

LEVEL OF EFFORT TO DATE:

$5,000

PROJECT STARTING DATE: April 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

1. Suspended sediment concentrations
2. Water temperature

Raw Form:

1. Lab notes
2. Field notes

Frequency:

Four stations - daily
Ten stations - monthly

Reduced Form:

Summary tables and graphs

Data Analysis:

Statistical (arithmetic means, standard deviations, significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. M. Spitzer
Water Survey of Canada
Calgary, Alberta

(403) 231-5301

PROJECT STATUS:

1976-77 interim report in review

COMMENTS:

Fiscal Year:	Updated to:	Project No.:
1977-78	31 March 1978	HY 1.4.3

SYSTEM: WATER

TITLE:

Mixing Studies in the Athabasca River and Delta-Winter Conditions in the River

OBJECTIVE:

Assess the ability of the Athabasca River in the AOSERP Study Area to mix point source effluent streams under ice conditions through the calibration and utilization of a mixing model.

PROPONENT:

Alberta Research Council
Edmonton, Alberta

RESEARCHERS:

Dr. S. Beltaos
Alberta Research Council

LEVEL OF EFFORT TO DATE:

$9,000

PROJECT STARTING DATE: February 1978

PROJECT COMPLETION DATE: August 1978

LOCATION:

Athabasca River at Athabasca and Fort McMurray

TYPES OF DATA COLLECTED:

Primary:
Concentration of dye samples at various cross sections downstream of injection point

Raw Form:

Field notes (see research manager's file)

Frequency:

Not available

Reduced Form:

Summary data sheets

Data Analysis:

Computer modelling

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. Beltaos
Alberta Research Council
Edmonton, Alberta

(403) 432-3492

PROJECT STATUS:

Project on-going; 1977-78 interim report I in review; interim report II in preparation.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HY 2.2

SYSTEM: WATER

TITLE:

Lake Acidification Potential in the AOSERP Study Area

OBJECTIVE:

Survey and determine acid susceptibility of 20 lakes in the AOSERP Study Area.

PROPONENT:

Freshwater Institute
Winnipeg, Manitoba

RESEARCHERS:

Dr. R.H. Hesslein
Environment Canada

LEVEL OF EFFORT TO DATE:

$20,000

PROJECT STARTING DATE: October 1976

PROJECT COMPLETION DATE: November 1977

LOCATION:

20 lakes in the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. pH, alkalinity, major cation & anion chemistry, sediment buffering capacity

Secondary:
2. Nutrient chemistry of water & suspended particulates

Raw Form:

1 & 2. Lab notes

Frequency:

Once

Reduced Form:

Summary tables and charts

Data Analysis:

Modelling, statistical (standard deviations, significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R.H. Hesslein
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1975-76; 1976-77

Updated to: 31 March 1978

Project No.: HY 2.3

SYSTEM: WATER

TITLE:

Interaction of Humic Substances with Metallic Elements

OBJECTIVE:

Preliminary study on the bio-availability of heavy metals in the waters of the AOSERP Study Area.

PROPONENT:

Inland Waters Directorate
Calgary, Alberta

RESEARCHERS:

Mr. M.L. Korchinski
Environment Canada

LEVEL OF EFFORT TO DATE:

$43,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: June 1977

LOCATION:

Athabasca River within the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. Water analyses
2. Sediment analyses
Secondary:
3. Water temperature

Raw Form:

1 & 2. Lab notes (see AOSERP research manager's file)
3. Field notes

Frequency:

1, 2 & 3. Approximately bi-monthly

Reduced Form:

Summary tables

Data Analysis:

Classification

Form of Storage:

Computer file, text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Mr. M. Korchinski
Environment Canada
Calgary, Alberta

(403) 231-5619

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1975-76

Updated to: 31 March 1978

Project No.: HY 2.4

SYSTEM: WATER

TITLE:

Low Flow Measurements

OBJECTIVE:

Analyze low flow conditions during winter.

PROPONENT:

Alberta Research Council
Edmonton, Alberta

RESEARCHERS:

Dr. Beltaos
Alberta Research Council

LEVEL OF EFFORT TO DATE:

$3,500

PROJECT STARTING DATE: February 1976

PROJECT COMPLETION DATE: March 1976

LOCATION:

Athabasca River at Fort McMurray

TYPES OF DATA COLLECTED:

Primary:
Waterlevels

Raw Form:

Field notes

Frequency:

Once

Reduced Form:

Summary tables and graphs

Data Analysis:

Gauge levels reduced to discharge (cfs)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. Gerard	Dr. Beltaos
Univ. of Alberta	Alta. Res. Council
Edmonton, Alta.	Edmonton, Alta.
(403) 432-2066	(403) 432-3492

PROJECT STATUS:

Final report overdue.

COMMENTS:

Same project number as project on following page, however, the projects were carried out in different years and are different in scope.

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HY 2.4

SYSTEM: WATER

TITLE:

Pathways of Dispersal of Heavy Metals in the Athabasca River

OBJECTIVE:

Document the natural heavy metal geochemistry of the sediment and assess cultural influences, if any, on concentrations.

PROPONENT:

Freshwater Institute, Winnipeg

RESEARCHERS:

Dr. R. Allan & Dr. T. Jackson
Environment Canada

LEVEL OF EFFORT TO DATE:

$15,000

PROJECT STARTING DATE: August 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

Athabasca River within AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Sediment analyses

Raw Form:

Lab notes

Frequency:

Once

Reduced Form:

Summary tables and graphs

Data Analysis:

Interpretation

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Allan
Freshwater Institute
Winnipeg, Manitoba

(204) 269-7379

PROJECT STATUS:

Project complete.

COMMENTS:

HY 2.3 is closely related to HY 2.4. Both projects were carried out at the same time. It should be noted that this project is the same number as the one on the previous page, however the projects are different in scope and were carried out in different years.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HY 2.5

SYSTEM: WATER

TITLE:

Intensive Water Quality Study of the Muskeg River Basin

OBJECTIVE:

Obtain an understanding of the natural water quality and processes in the Muskeg Basin and establish baseline conditions.

PROPONENT:

Alberta Environment,
Water Quality Control Branch, Edmonton

RESEARCHERS:

Dr. R. Seidner
Alberta Environment

LEVEL OF EFFORT TO DATE:

$26,000

PROJECT STARTING DATE: March 1976

PROJECT COMPLETION DATE: March 1978

LOCATION:

16 sites on the Muskeg River within the AOSERP Study Area.

TYPES OF DATA COLLECTED:

Primary:

1. Flows
2. On-site water chemistry measurements
3. Chemical & Biological water analysis
4. Regime characterization

Raw Form:

1, 2 & 4. Field notes
3. Lab notes (see research manager's file)

Frequency:

Monthly and bi-montly to July 1977, monthly at 3 sites after July 1977

Reduced Form:

Summary tables

Data Analysis:

Interpretation

Form of Storage:

NAQUADAT coded computer file; text.

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report overdue.

COMMENTS:

See also HY 2.8.1.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HY 2.8.1

SYSTEM: WATER

TITLE:

Interim Report on the Regional Water Quality of the Alberta Oil Sands Environmental Research Program Study Area

OBJECTIVE:

Obtain an initial understanding of the natural water quality and processes in the AOSERP area and related delta area and establish baseline conditions.

PROPONENT:

Alberta Environment,
Water Quality Control Branch, Edmonton

RESEARCHERS:

Dr. R. Seidner
Alberta Environment

LEVEL OF EFFORT TO DATE:

$97,000

PROJECT STARTING DATE: April 1977

PROJECT COMPLETION DATE: March 1980

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
1. On-site water chemistry measurements
2. Chemical & bacterial analysis of water

Raw Form:

1. Field notes
2. Lab notes (see AOSERP Research Manager's file)

Frequency:

Monthly and bi-monthly

Reduced Form:

Computer files, summary tables

Data Analysis:

Classification and interpretation

Form of Storage:

NAQUADAT coded computer files, text.

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project on-going; 1977-78 interim report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HY 2.6

SYSTEM: WATER

TITLE:

Biochemical Ecology of the Athabasca River related to Industrial Use

OBJECTIVE:

Assess both free and silt associated bacteriological populations in the Athabasca River to provide a baseline from which the river's capacity to absorb chemicals from industry and determine the distance downstream for river recovery.

PROPONENT:

University of Calgary
Department of Biology

RESEARCHERS:

Dr. I.W. Costerton & Dr. G.G. Gesey
University of Calgary

LEVEL OF EFFORT TO DATE:

$46,000

PROJECT STARTING DATE: May 1976

PROJECT COMPLETION DATE: January 1978

LOCATION:

10 sites on the Athabasca River within the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary: 1. Microbiological samples
Secondary:
2. Temperature 3. Conductance
4. D.O. 5. pH
6. Depth Soundings

Raw Form:

1. Lab notes and photographs
2, 3, 4, 5 & 6. Field notes

Frequency:

At least twice

Reduced Form:

Summary tables and charts

Data Analysis:

1. Classification
2-6. Statistical (arithmetic means, standard deviation & significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HY 3.1.1

SYSTEM: WATER

TITLE:

Characterization of Organic Constituents in Waters and Wastewaters of the Athabasca Oil Sands Mining Area

OBJECTIVE:

Classify, quantify and compare the organic constituents in wastewaters of existing oil sands extraction on plant wastewaters with those found in the Athabasca River system.

PROPONENT:

University of Calgary
Environmental Sciences Centre

RESEARCHERS:

Mr. M.T. Strosher & Mr. E. Peake
University of Calgary

LEVEL OF EFFORT TO DATE:

$37,000

PROJECT STARTING DATE: September 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

5 sites near the Athabasca River within the AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:

Quantity of organic compounds.

Raw Form:

Lab notes

Frequency:

Variable

Reduced Form:

Summary tables and graphs

Data Analysis:

Interpretive analysis

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

Fiscal Year:	Updated to:	Project No.:
1975-76	31 March 1978	HY 3.1

SYSTEM: WATER	TYPES OF DATA COLLECTED: Primary: 1. Quantitation of organic compounds and heavy metals Raw Form: Lab notes Frequency: Various Reduced Form: Summary tables Data Analysis: Interpretive analysis Form of Storage: AOSERP Report #5; Alberta Environment Library
TITLE: The Evaluation of Wastewater from an Oil Sand Extraction Plant	
OBJECTIVE: Classify and quantify the major groups of organic constituents in the wastewaters of the existing oil sands extraction plant.	
PROPONENT: University of Calgary, Environmental Sciences Centre, Calgary	
RESEARCHERS: Mr. M.T. Strosher & Mr. E. Peake University of Calgary	DATA INFORMATION CONTACT: Dr. R. Seidner, Research Manager Water System, AOSERP Edmonton, Alberta (403) 427-3943
LEVEL OF EFFORT TO DATE: $45,000	
PROJECT STARTING DATE: September 1975	DATA ACCESS CONTACT: Dr. R. Seidner, Research Manager Water System, AOSERP Edmonton, Alberta (403) 427-3943
PROJECT COMPLETION DATE: September 1976	
LOCATION: Great Canadian Oil Sands, Ft. McMurray	PROJECT STATUS: Final report complete.
COMMENTS:	

Fiscal Year: 1976-77

Updated to: 31 March 1978

Project No.: HY 3.1

SYSTEM: WATER

TITLE:

Chemical Analysis of Effluents and Water

OBJECTIVE:

Provide routine standardized analytical chemistry support to AOSERP research projects in the fields of hydrology and aquatic fauna

PROPONENT:

Chemex Labs (Alberta) Ltd., Edmonton

RESEARCHERS:

Not available

LEVEL OF EFFORT TO DATE:

$65,000

PROJECT STARTING DATE: July 1976

PROJECT COMPLETION DATE: March 1977

LOCATION:

AOSERP Study Area

TYPES OF DATA COLLECTED:

Primary:
Water quality parameters

Raw Form:

Chemical analysis reports

Frequency:

N/A

Reduced Form:

Summary sheets

Data Analysis:

N/A (see comments section below)

Form of Storage:

Computerized NAQUADAT system, summaries and tables; AOSERP research project reports

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

PROJECT STATUS:

Project complete; no report.

COMMENTS:

This project was chemical analyses only. HY 3.1 (1976-77) is affiliated with AF 1.5.1. HY 3.1 (1976-77) is not included in annual report.

Fiscal Year: 1977-78

Updated to: 31 March 1978

Project No.: HY 3.1.2

SYSTEM: WATER

TITLE:

Water Quality Investigation into the Form of Organic Compounds in the Alberta Oil Sands Environmental Research Program (AOSERP) Study Area

OBJECTIVE:

Obtain baseline information on the natural organic loading of the Athabasca River upstream of the surface mining.

PROPONENT:

University of Calgary
Environmental Sciences Centre, Calgary

RESEARCHERS:

Mr. M.T. Strosher & Mr. E. Peake
University of Calgary

LEVEL OF EFFORT TO DATE:

$25,000

PROJECT STARTING DATE: December 1977

PROJECT COMPLETION DATE: April 1978

LOCATION:

Athabasca River; 100 km, 40 km and 2 km upstream from Fort McMurray.

TYPES OF DATA COLLECTED:

Primary:
1. Chemical analysis of water & sediment samples

Secondary:
2. Water temperature

Raw Form:

Chemical analysis reports

Frequency:

1 & 2. Once

Reduced Form:

Summary tables, charts

Data Analysis:

Statistical (arithmetic means, standard deviation and significance)

Form of Storage:

Text

DATA INFORMATION CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta

(403) 427-3943

DATA ACCESS CONTACT:

Dr. R. Seidner, Research Manager
Water System, AOSERP
Edmonton, Alberta
(403) 427-3943

PROJECT STATUS:

Final report in review.

COMMENTS:

SUBJECT INDEX

Project No.

Air, Emission Inventory ..... ME 2.2

Air Quality .... ME 1.5.1
ME 1.5.2
ME 2.1
ME 2.2
ME 2.4
ME 3.2
ME 3.6
ME 4.2.2
ME 5.0

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VE 3.2
VE 3.3
VE 3.4
VE 3.5
VE 3.6
VE 4.2

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Archaeology .... HE 2.1

Atmospheric, Dispersion
and Turbulence .... ME 1.5.1
ME 1.5.2
ME 1.5.3
ME 3.6
ME 3.8.1
ME 3.8.2
ME 3.8.3

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TF 1.3
TF 3.2

Beaver .... TF 3.1
TF 1.1.4

Birds, Migratory .... TF 1.1.2
TF 1.2

Birds, Upland .... TF 1.1.5

Project No.

Birds, Rare & Endangered .... TF 1.2
TF 2.2
TF 2.3

Climatology .... ME 3.1
ME 3.4
ME 5.0

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Caribou .... TF 1.1
TF 1.1.1

Demography .... HE 1.1.1

Effluents .... AF 1.2.1
AF 1.5.1
AF 2.0
AF 2.3.1
AF 3.3.1
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HY 3.1.1

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ME 1.5.2
ME 1.5.3

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AF 4.2.2

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AF 4.5.1
AF 4.5.2
AF 4.8.1

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AF 4.1.1
AF 4.3.1
AF 4.5.1
AF 4.5.2
AF 4.6.1
AF 4.8.1

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ME 3.7

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AF 4.4.1

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(see also Toxicity) HY 2.3
HY 2.4

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HE 2.4
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HG 1.1

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Impact, Social .... HE 1.2
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AF 2.2.1
AF 2.5.1

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AF 2.5.1

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Bottenheim, J.W. .... ME 3.5.1
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Hackbarth, D.	HG 1.0
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Hauge, T.	TF 2.1
Hendzel, M.	AF 2.1.1
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Jones, M.L.	AF 4.8.1
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Kristensen, J.	AF 4.1.1
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Lawrence, S.	AF 3.2.1
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Lindsay, J.D.	VE 2.1 VE 5.2
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Lutz, A.	AF 2.1.1
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MacLean, A.H.	VE 4.1
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Mann, G.J.	AF 4.8.1
Martin, J.A.	AF 4.9.2
Masuda, A.	HE 2.1
McCart, P.J.	AF 4.8.1
McElhone, M.	AF 2.5.1
McGill, W.B.	VE 4.1 VE 5.2

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Nimmo, A.P.	TF 8.1
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Schindler, D.W.	AF 2.3.1
Schwartz, F.	HG 1.1
Seidner, R.	HY 2.5 HY 2.8.1
Sekerak, A.D.	AF 4.1.1
Shelfentook, W.	ME 2.2
Sherstabetoff, J.	VE 7.1
Sikstrom, C.	AF 4.9.2
Snider, E.L.	HE 1.1.2
Sprague, J.B.	AF 3.5.1
Spear, P.	AF 3.6.1
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Stendahl, D.	AF 3.5.1
Strausz, O.D.	ME 3.5.1 ME 3.5.4
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Turchenek, L.W.	VE 2.1 VE 4.1
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Walton, B.D. .... AF 4.9.1

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Wride, M.C. .... VE 2.3.1

Young, B.F. .... TF 1.4

Younkin, W. .... VE 7.6

AOSERP RESEARCH REPORTS

1.		AOSERP First Annual Report, 1975
2.	AF 4.1.1	Walleye and Goldeye Fisheries Investigations in the Peace-Athabasca Delta--1975
3.	HE 1.1.1	Structure of a Traditional Baseline Data System
4.	VE 2.2	A Preliminary Vegetation Survey of the Alberta Oil Sands Environmental Research Program Study Area
5.	HY 3.1	The Evaluation of Wastewaters from an Oil Sand Extraction Plant
6.		Housing for the North--The Stackwall System
7.	AF 3.1.1	A Synopsis of the Physical and Biological Limnology and Fisheries Programs whithin the Alberta Oil Sands Area
8.	AF 1.2.1	The Impact of Saline Waters upon Freshwater Biota (A Literature Review and Bibliography)
9.	ME 3.3	Preliminary Investigations into the Magnitude of Fog Occurrence and Associated Problems in the Oil Sands Area
10.	HE 2.1	Development of a Research Design Related to Archaeological Studies in the Athabasca Oil Sands Area
11.	AF 2.2.1	Life Cycles of Some Common Aquatic Insects of the Athabasca River, Alberta
12.	ME 1.7	Very High Resolution Meteorological Satellite Study of Oil Sands Weather: "A Feasibility Study"
13.	ME 2.3.1	Plume Dispersion Measurements from an Oil Sands Extraction Plant, March 1976
14.		
15.	ME 3.4	A Climatology of Low Level Air Trajectories in the Alberta Oil Sands Area
16.	ME 1.6	The Feasibility of a Weather Radar near Fort McMurray, Alberta
17.	AF 2.1.1	A Survey of Baseline Levels of Contaminants in Aquatic Biota of the AOSERP Study Area
18.	HY 1.1	Interim Compilation of Stream Gauging Data to December 1976 for the Alberta Oil Sands Environmental Research Program
19.	ME 4.1	Calculations of Annual Averaged Sulphur Dioxide Concentrations at Ground Level in the AOSERP Study Area
20.	HY 3.1.1	Characterization of Organic Constituents in Waters and Wastewaters of the Athabasca Oil Sands Mining Area
21.		AOSERP Second Annual Report, 1976-77
22.		
23.	AF 1.1.2	Acute Lethality of Mine Depressurization Water on Trout Perch and Rainbow Trout
24.	ME 1.5.2	Air System Winter Field Study in the AOSERP Study Area, February 1977.
25.	ME 3.5.1	Review of Pollutant Transformation Processes Relevant to the Alberta Oil Sands Area

26.	AF 4.5.1	Interim Report on an Intensive Study of the Fish Fauna of the Muskeg River Watershed of Northeastern Alberta
27.	ME 1.5.1	Meteorology and Air Quality Winter Field Study in the AOSERP Study Area, March 1976
28.	VE 2.1	Interim Report on a Soils Inventory in the Athabasca Oil Sands Area
29.	ME 2.2	An Inventory System for Atmospheric Emissions in the AOSERP Study Area
30.	ME 2.1	Ambient Air Quality in the AOSERP Study Area, 1977
31.	VE 2.3	Ecological Habitat Mapping of the AOSERP Study Area: Phase I
32.		AOSERP Third Annual Report, 1977-78
33.	TF 1.2	Relationships Between Habitats, Forages, and Carrying Capacity of Moose Range in northern Alberta. Part I: Moose Preferences for Habitat Strata and Forages.
34.	HY 2.4	Heavy Metals in Bottom Sediments of the Mainstem Athabasca River System in the AOSERP Study Area
35.	AF 4.9.1	The Effects of Sedimentation on the Aquatic Biota
36.	AF 4.8.1	Fall Fisheries Investigations in the Athabasca and Clearwater Rivers Upstream of Fort McMurray: Volume I
37.	HE 2.2.2	Community Studies: Fort McMurray, Anzac, Fort MacKay
38.	VE 7.1.1	Techniques for the Control of Small Mammals: A Review
39.	ME 1.0	The Climatology of the Alberta Oil Sands Environmental Research Program Study Area
40.	WS 3.3	Mixing Characteristics of the Athabasca River below Fort McMurray - Winter Conditions
41.	AF 3.5.1	Acute and Chronic Toxicity of Vanadium to Fish
42.	TF 1.1.4	Analysis of Fur Production Records for Registered Traplines in the AOSERP Study Area, 1970-75
43.	TF 6.1	A Socioeconomic Evaluation of the Recreational Fish and Wildlife Resources in Alberta, with Particular Reference to the AOSERP Study Area. Volume I: Summary and Conclusions
44.	VE 3.1	Interim Report on Symptomology and Threshold Levels of Air Pollutant Injury to Vegetation, 1975 to 1978
45.	VE 3.3	Interim Report on Physiology and Mechanisms of Air-Borne Pollutant Injury to Vegetation, 1975 to 1978
46.	VE 3.4	Interim Report on Ecological Benchmarking and Biomonitoring for Detection of Air-Borne Pollutant Effects on Vegetation and Soils, 1975 to 1978.
47.	TF 1.1.1	A Visibility Bias Model for Aerial Surveys for Moose on the AOSERP Study Area
48.	HG 1.1	Interim Report on a Hydrogeological Investigation of the Muskeg River Basin, Alberta
49.	WS 1.3.3	The Ecology of Macrobenthic Invertebrate Communities in Hartley Creek, Northeastern Alberta
50.	ME 3.6	Literature Review on Pollution Deposition Processes
51.	HY 1.3	Interim Compilation of 1976 Suspended Sediment Date in the AOSERP Study Area
52.	ME 2.3.2	Plume Dispersion Measurements from an Oil Sands Extraction Plan, June 1977

53.	HY 3.1.2	Baseline States of Organic Constituents in the Athabasca River System Upstream of Fort McMurray
54.	WS 2.3	A Preliminary Study of Chemical and Microbial Characteristics of the Athabasca River in the Athabasca Oil Sands Area of Northeastern Alberta
55.	HY 2.6	Microbial Populations in the Athabasca River
56.	AF 3.2.1	The Acute Toxicity of Saline Groundwater and of Vanadium to Fish and Aquatic Invertebrates
57.	LS 2.3.1	Ecological Habitat Mapping of the AOSERP Study Area (Supplement): Phase I
58.	AF 2.0.2	Interim Report on Ecological Studies on the Lower Trophic Levels of Muskeg Rivers Within the Alberta Oil Sands Environmental Research Program Study Area
59.	TF 3.1	Semi-Aquatic Mammals: Annotated Bibliography
60.	WS 1.1.1	Synthesis of Surface Water Hydrology
61.	AF 4.5.2	An Intensive Study of the Fish Fauna of the Steepbank River Watershed of Northeastern Alberta
62.	TF 5.1	Amphibians and Reptiles in the AOSERP Study Area
63.		
64.	LS 21.6.1	A Review of the Baseline Data Relevant to the Impacts of Oil Sands Development on Large Mammals in the AOSERP Study Area
65.	LS 21.6.2	A Review of the Baseline Data Relevant to the Impacts of Oil Sands Development on Black Bears in the AOSERP Study Area
66.	AS 4.3.2	An Assessment of the Models LIRAQ and ADPIC for Application to the Athabasca Oil Sands Area
67.	WS 1.3.2	Aquatic Biological Investigations of the Muskeg River Watershed
68.	AS 1.5.3 AS 3.5.2	Air System Summer Field Study in the AOSERP Study Area, June 1977
69.	HS 40.1	Native Employment Patterns in Alberta's Athabasca Oil Sands Region
70.	LS 28.1.2	An Interim Report on the Insectivorous Animals in the AOSERP Study Area
71.	HY 2.2	Lake Acidification Potential in the Alberta Oil Sands Environmental Research Program Study Area
72.	LS 7.1.2	The Ecology of Five Major Species of Small Mammals in the AOSERP Study Area: A Review
73.	LS 23.2	Distribution, Abundance and Habitat Associations of Beavers, Muskrats, Mink and River Otters in the AOSERP Study Area, Northeastern Alberta
-	--	Interim Report to 1978
74.	AS 4.5	Air Quality Modelling and User Needs
75.	LS 2.1	Interim Report on the Soils Inventory of the AOSERP Study Area

76.	AF 4.5.1	An Intensive Study of the Fish Fauna of the Muskeg River Watershed of Northeastern Alberta
77.	HS 20.1	Overview of Local Economic Development in the Athabasca Oil Sands Region Since 1961.
78.	LS 22.1.1	Habitat Relationships and Management of Terrestrial Birds in Northeastern Alberta.

These reports are not available upon request. For further information about availability and location of depositories, please contact:

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